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ON THE COVER: The last flights of a Phantom in USAF service included a QF-4E, flown by Lieutenant Colonel Ronald King, Commander of the 82nd ATRS Detachment 1, June 3, 2015, who soloed the Phantom for the first time, making him the last pilot to be checked out in the "Rhino." The last QF-4 shot down in a target mission was QF-4E, serial number 71-237, on May 27, 2015, at Tyndall Air Force Base, Florida. All QF aircraft, both the QF-4 and QF-16, are obsolete aircraft pulled out of the Boneyard and retrofitted for the target role. (Photo by John Dibbs/planepicture.com)

THIS PAGE: A Phantom in full burner is an awesome sight to see and, according to generations of pilots, equally as awesome to fly. (Photo by George Hall/Check Six)

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Thomas McKelvey Cleaver

Escape from Agana Harbor

Don Brandt's amazing escape from Agana harbor was one of the first great war stories I can remember reading. When I began research for my book on the aces of VF-2, I discovered that Don was the last member of the squadron still with us. I arranged an interview with him as quickly as possible. Like so many of the others, his attitude is one of surprise that all that happened to him back then.



Barrett Tillman

Phantom: The Cult Machine

There are classic aircraft and then there are cult machines. The Phantom is both, and it has always been one of my favorites. The problem with writing about the F-4 was not what to include in some 3,000 words but what to omit. So I tried to address the "Phabulous Phantom" both as the iconic U.S. fighter of its era and its continuing career with a dozen foreign users. For balance, I consulted both pilots and backseaters, and I really enjoyed writing about their varied perspectives.



Iconic Firepower: Maxim Machine Gun

In addition to being a lifelong airplane guy, I'm also seriously interested in firearms. So it's fun to match the two, as many warbird owners also are firearms collectors. The successful mating of aircraft and firearms occurred with the Fokker *Eindecker* of 1915. Consequently, the history of Germany's Maxim machine gun is a natural topic for *Flight Journal*. World War I literature often features "chattering Spandaus," which, of course, were Maxims, leading to the Vickers knockoffs, as you'll see here.



Kelly Bell

Habbaniya Surprise: Battle of Britain, Iraqi Style

When I came across the chronicle of the May 1941 Battle of Habbaniya, I was sobered at the implications of this Mideast shootout. Iraqi militants nearly won World War II for Nazi Germany by bringing Britain to its knees before the United States and the Soviet Union entered the fray. To this day, however, this battle is shrouded in incomprehensible obscurity. These factors and the unorthodox nature of the fighting itself make this a story that is crying out to be told. I couldn't wait to share it.



Robert "Cricket" Renner

An Icon's Last Bow

SPAD, Mustang, Sabre, Phantom, Eagle—these are the aircraft that have defined the U.S. Air Force in each generation's war. As a career Eagle Driver, I have always admired the F-4 Phantom and its businesslike shape. During my tour as an operational test pilot, I shot many live air-to-air missiles, which included the shooting down of two QF-4s on one mission. With the end of the QF-4's service at Tyndall Air Force Base, Florida, I wanted to take this opportunity to salute the phinal "Phlorida Phantoms" and their operators.



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Of Mach 2.0 Icons, Little-Known Biplanes, and...Periscopes

BY BUDD DAVISSON

Eisenhower was in the Oval Office when Phantom II made her first flight. Kennedy had yet to be inaugurated when she left on her first operational deployments. Now, 55 years later, by the time you read these words, she will have made her last flights as QF-4 drones at Tyndall Air Force Base (AFB) in Florida. It's doubtful if any of the pilots who flew those last flights were even close to being as old as their mounts.

Phantom II was far from being the best-looking belle at any ball she attended. Compared to the MiGs she danced with during the most active part of her career, she was huge. Absolutely HUGE! And ungainly. She appeared almost Dumbo-like with her ears at odd angles to the wind. But when mixed with young men who knew her personality and could coax just a little more out of her, Phantom II proved a formidable competitor in conflicts throughout the world. Although the world of fighters has moved past her, there are generations of pilots who look at the old "Rhino" with more than just a little affection. For that reason, through the words of those who were there at the beginning and those who made the last flights, a portion of this issue is dedicated to the tale of the Phantom from beginning to end.

Barrett Tillman goes back to the beginning and lets us in on the birth of the longest-serving fighter in American history. He then reaches out to those who rode her into battle, who reflect on what it was like to spend their days and expend their youth in the skies over Vietnam.

Robert "Cricket" Renner, a fighter pilot whose F-15 was a distant descendant of the Phantom, takes us to Tyndall AFB where, for decades, the plane has continued its existence as an aerial warrior. But this time, those shooting at it wore the stars

and bars of friendly forces, and the QF-4 was their target. The pilots manning and controlling the Phantom drones had the unique opportunity of intimately knowing the longest-serving fighter in U.S. Air Force inventory and allowing it to enjoy a warrior's death, rather than rusting away in a desert or being vandalized in a public park. Cricket tells the story of the aircraft and the men who knew her.

The extreme opposite is Kelly Bell's detailed chronicle of a little-known battle that is considered the Battle of Britain in the desert. The Royal Air Force training school at Habbaniya, Iraq, was attacked by Axis forces, and the fight should have been swift and short. The enemy, however, didn't expect the tenacity and bravery of the under-equipped, under-trained student pilots. It's an interesting chapter of history with a story and a moral that bears repeating.

Tom Cleaver takes us out of the dry desert and tosses us into Agaña harbor in the Mariana Islands. Don Brandt and his Hellcat were part of the preinvasion action against the Japanese carried out by VF-2 off the USS *Hornet*. Hit by anti-aircraft artillery, Brandt bailed out and landed in the middle of the harbor well within range of enemy guns—and that's where the drama began. The submarine *Stingray* was positioned to rescue downed airmen, but no one had explained the rescue procedure to the fliers. The drama immediately became even more intense and just a little bit comical.

We're going to bring you closer to an airplane you know well, the Phantom II. And we're going to show a side of Hellcat combat not often discussed. Plus, you're going to experience combat between aircraft we're betting that you barely knew existed. So put your feet up, and enjoy! ✚

A monster on the move: Phantom pilots often comment on the brute force acceleration of a takeoff in burner. The QF-4 drones at Tyndall Air Force Base were the last to give us that spectacle. (Photo by John Dibbs/planepicture.com)



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Another good issue

What a cover on the October issue! Hose Nose coming right at us. Reminds me of when someone asked me, "Where did you get that picture?" and I said, "Out of the windshield in my 150!" Hoo, boy! Good issue. Barrett did it again, and the article by Walt Boyne, about the B-47, is a good first-person recounting.

I was in the 305th Bomb Wing from 1955 until '64, when I got out and went to the Reserves. I went from MacDill Air Force Base (AFB) in Florida ('55-'59) with our 47s up to Bunker Hill AFB (now Grissom AFB) in Peru, Indiana, then we got our B-58s in '60. I'll have to send Walt a "thank you" note for good memories!

Bob Spielman

Thanks, Bob. 47s and 58s, huh? That's so cool!
—BD

Hauling cargo wasn't easy

I read with interest Mr. Renner's article on Jacques Young in the latest issue of *Flight Journal*. It so happens that Young and I were both in the 3rd Air Commando Group. The difference was that he flew a P-51 and I the C-47 or, as you described, "Hauling Cargo," which wasn't as easy as it sounds. I can almost guarantee that we came back from our supply missions with more bullet holes than did most of the 51s. When you are slowed down to 100 mph and are 50 feet off the ground on a drop, you are fair game to a lot of ground fire.

Jim Gorman

Thanks, Jim. To readers: Jim is a friend and the real deal. Plus, he owns a Beech Staggerwing. I'm jealous!
—BD

V-2s and a Perspective on Von Braun

You have an excellent magazine, and I have been a loyal reader for many years. The latest edition of your publication had an article on the V-2, which was of special interest to me because I am writing a book on the legacy of Wernher von Braun and

the German rocket team. I did my master's thesis in history on the von Braun team in 2001, and I decided to revisit the subject this year.

Since I completed my master's degree, a plethora of articles, books, and documentaries have been produced discussing how we should reevaluate von Braun in light of his work for the German military in building the A-4/V-2. Mr. Tillman references this reality when he notes the civilian casualties from the V-2 in Britain and Western Europe. In my research, I have found that this issue doesn't seem to bother the current critics of von Braun. They focus on the use of slave labor at the Mittelwerk (Mittelbau-Dora) as being his cardinal sin for which he should be judged as, at best, an amoral opportunist or, at worst, a Nazi war criminal who should have been imprisoned or executed.

This subject is still quite controversial for those I have interviewed who worked with the von Braun team in Huntsville, Alabama. There are those who are passionate defenders of von Braun and his team, and there are those who are critical with strong negative opinions about the team. Rarely have I found a moderate opinion on this subject. This is one reason why I appreciated the even-handed manner in which Mr. Tillman discussed the V-2 as a weapon and as a preview in what was to come for the exploration of space.

I am still caught by surprise when I encounter strong emotional reactions to this subject 70 years after the war ended. Most of the American people are not aware of Operation Paperclip; the majority

Can anyone identify this aircraft for a reader?



What is the Aircraft?

Attached is a picture of my father (tall fellow, standing) on an aircraft that appears to be shot down. My father immigrated from Denmark and joined the Canadian Army, 9 Canadian Field Squadron RCE (Royal Canadian Engineers), formed in England in April 1943. I know that he was serving during the campaign in Italy. This picture came to my attention just last week, and I received a copy from my brother. Being an airplane buff, I am wondering what type of airplane is in the photograph.

I have been subscribing to *Flight Journal* since your first issue. It's a great magazine. I enjoy every word.

Byron Jensen

This seems like a question to be asked of our readers. How about it? —BD

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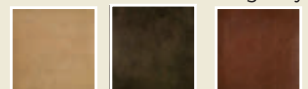
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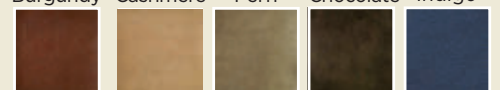
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of those who have heard of the program only know of it in connection to von Braun and his team. We haven't had an open, informed public discussion about the ethics of bringing more than 1,600 German scientists, engineers, technicians, and their families to the United States after the war. One of the best books that I have read on this subject is *Operation Paperclip* by the journalist Annie Jacobsen (even if her opinion of von Braun is colored by the influence of noted critic Michael Neufeld). An issue that I'm addressing in my book is how we arrive at a realistic and balanced judgment of von Braun and his team.

This is a subject that started in WW II but was heavily influenced by the political and strategic realities of the Cold War. Walter Boyne's article, "Life among the Nukes: A Cold War Warrior Remembers," provides a personal perspective on how dangerous that era was as we faced the very real possibility of global thermonuclear war with the Soviet Union. It's surreal to know that we had almost 32,000 nuclear weapons in 1966, while the Soviets built an astounding 55,000 by 1986. I'm not sure how we were able to survive the Cold War without annihilating all life on this planet, but I am thankful.

I appreciate the time, effort, and passion that you put into each issue of *Flight Journal*. It is one of the few publications I get that I read from cover to cover and then reread again at a later date. My special thanks to Mr. Tillman for writing about the V-2.

Robert Carver

Wow! We love getting letters that broaden our understanding so much. Thanks. —BD



Loves the Oil Hawks

When I saw the article on the pilot Al Williams, I remembered some photos and information given to me by the wife of Al's son, Jack, back in the 1980s. I had met Jack when he and his family were living in Charlotte, North Carolina, and he shared me some of the fascinating photos and stories of his famous father. After Jack's death, his wife, Linda, passed on to me two photos and two magazine articles from Jack's files. The photos are signed publicity photos of Al Williams flying the Gulfhawk II and the Gulfhawk IV. The interesting thing is that Jack had handwritten on the back of both photos the history, specifications, and statistics of each aircraft. I've included copies of the photos.

Greg Platko

Very, very cool mementoes. —BD



For two decades Major Alford Williams was a legendary pilot in test flying, racing, and performing at airshows in his series of Gulfhawks, which culminated in his Grumman F8F Bearcat. His aviation resume was deep and varied.

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Hellcat at Work: A Free Digital Image!

The mighty Grumman F6F Hellcat needs no introduction. It carried the fight to the enemy throughout the Pacific and emerged as the most successful fighter of the Pacific Theater of Operations. More important, it was the airplane that could be counted on to bring a pilot home regardless of the amount of damage it had suffered. Shown here during carrier-qualification training onboard CVE-30, USS *Charger*, the combination of the Hellcat and *Charger* produced thousands of carrier-qualified combat pilots. The *Charger* was originally built to be a passenger liner. Before completion, however, it was taken over by the U.S. Navy (USN) and converted to escort



carrier configuration. It was to be sent to England under the Lend-Lease Act. The USN, however, again intervened, and the USS *Charger* spent the entire war in Chesapeake Bay teaching pilots the fine art of landing on a moving ship. This image is available on FlightJournal.com and is suitable for printing or use as a screensaver.



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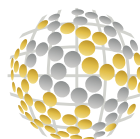
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PHANTOM

The Cult Machine

55 YEARS OF THE UGLY
BUT EFFECTIVE F-4

BY **BARRETT TILLMAN**



Occasionally, an aircraft defines its generation: the DC-3, the Spitfire, the B-29—and the F-4 Phantom.

McDonnell Aircraft of St. Louis, Missouri, was an early contender in the market for military jets. Its president, James S. “Mr. Mac” McDonnell, guided the firm through the postwar era with “spooky” products, such as the original FD-1 (later FH-1) Phantom I, the highly successful F2H Banshee, and the F3H Demon. The F4H-1 represented a generational step ahead.

During the Korean War, the farsighted “Mr. Mac” anticipated the Navy’s requirement for a high-performance jet attack aircraft. Despite the lack of a current contract, the nascent AH-1 began in-house, built around the extremely promising Pratt & Whitney J79 engine. Aerodynamicist David S. Lewis conceived a multimission aircraft, even proposing a

replaceable nose section with one or two seats.

In 1955, the Navy let a contract for two prototype YAH-1s, and the company gave birth to a world beater. Lewis’s team conducted extensive wind-tunnel tests that produced the future Phantom’s distinctive dihedral wingtips for lateral stability as well as a dramatic 23-degree anhedral of the stabilators for optimal control at high angles of attack. Additionally, the two inlets featured variable ramps for efficient supersonic performance.

ADM

The Phantom was operated by air forces worldwide and is still flown by half a dozen countries. JG71, the last unit to fly Phantoms in Germany, pictured here, retired its F-4Fs in June 2013. (Photo by Jamie Hunter)



The contract was up for grabs between McDonnell and Vought's F8U-3 supersonic interceptor, developed from the successful Crusader. But McDonnell won, and the company began working on its most complex product ever.

From its first flight in 1958, the Phantom started breaking records almost immediately. Beginning in 1959, it set 15 world records for speed, altitude, and climb. In December, Commander Larry Flint conducted Operation Top Flight, making Mach 2.5 at 47,000 feet and zooming to 98,500 feet. Upon reaching the goal, Flint radioed, "The highballs are on me!"

In 1961, Phantom crews received the Bendix Trophy for the first transcontinental flight in less than three hours. One of the pilots was Lieutenant Richard Gordon, future Gemini and Apollo astronaut.

Meanwhile, F4H-1s arrived in December 1960, joining VF-121 at the Naval Air Station in Miramar, California. VF-74 made the first deployment, a Mediterranean cruise aboard USS *Forrestal* (CVA-59) in 1962–63. Meanwhile, VMFA-314 received the first Marine Corps Phantoms at El Toro, California.

In 1962, the Department of Defense adopted a unified aircraft-designation system, and the Navy F4H and Air Force F-110 became the F-4. Excepting some Navy loaners, the 12th TFW at MacDill Air Force Base (AFB), Florida, accepted the first "blue suit" Phantoms in early 1964.

As a fleet-defense fighter, the F-4B used a powerful AN/APQ-72 radar for AIM-7 Sparrow missiles, with a radar intercept officer (RIO) seated behind the pilot. The radar was expected to detect bombers as far as 70 miles away. For maneuvering engagements, the pilot had four AIM-9 Sidewinder heat seekers.

Around the Boat

Designed as a carrier aircraft, the Phantom had to perform "at both ends of the boat." For catapult shots, compressed air was injected into the front-wheel strut to raise the nose about two feet. That configuration yielded the optimal attitude upon leaving the deck. Even so, over-rotating was fairly common.



The Marine Corps's "Death Rattler" squadron, VMFA-323, received Phantoms in 1964 and flew them at sea and ashore until 1982 when F/A-18 Hornets arrived. (Photo by Bob Lawson/Check Six)

Captain Lonny McClung, an F-4 squadron commander and Topgun skipper, recalls:

"You definitely had to fly the plane off. Night shots were especially challenging. My technique for cat shot was 'three fingers.' I'd put my throttle hand between my legs, then take the three middle fingers as a spacer between the lower eject handle and the stick. I locked my right arm in that position and when the cat fired would settle maybe five to 10 feet, but was the perfect attitude day or night to get 10 degrees nose up and climb. I never over-rotated with that technique."

Contrarily, the F-4 was extremely well behaved coming up the wake for a carrier landing. McClung adds, "Coming aboard was a joy in the Phantom. It was by far the most stable aircraft on the ship. The F-4 was very pitch stable on the glide slope, and corrections on the landing mirror ball were easily made almost exclusively with the throttles and very little nose movement. It was very solid in the power approach configuration. Due to the nose-up on-speed angle of attack, the power was very effective in making glide slope corrections with little to no movement of the nose attitude. I won top hook for the entire air wing on *Constellation's* 1973 cruise. Brown Bear Schaffert was my skipper, and I would bet him on which wire I would catch. Won most of them."

Those two huge J79s consumed enormous amounts of fuel. Navy pilots loitering on Barrier CAP figured on 100 pounds per minute at

250 knots. So fuel and engines were a concern, briefly described by Cdr. Jack Woodul who came from A-4s and F-8s:

"The Phantom smoked a *lot* more than all our A-6 and A-4s in strike packages. That is in basic engine—everybody knew 'THAT'S the Phantom.' But the smoke went away, along with lots of petrol, in burners.

"When I became a Fantoom puke, the SOP on a radar intercept to merge with adversaries was for the aircraft running the intercept to stay 100% smokin' basic engines, and the wingie to go min burner, eliminate the smoke and separate in altitude and position enough from the smoker to 'disappear.' Then he'd hook in and shoot after the merge, and the adversary turned after 'the grape' he'd been watching smoke for 20 miles.

"I still have a Topgun booklet describing how a clean F-4 can turn and stay on opposite side of a 10K Lufbery at 550 kts and 5.5 Gs against an adversary A-4.

"One circle or so and...Bingo to base!"

RIOs and WSOs

Most first-generation Phantom pilots had grown up in single-seaters, and some uncharitably said that they preferred 200 pounds of extra fuel. The colorfully outspoken Captain Foster "Tooter" Teague was dragged from his beloved F-8 Crusader with the proverbial doorknob in each hand and skid marks on the deck. But he recalled, "You

know, after a few ACM hops, I really liked having that second set of eyes.”

Commander Jan Jacobs, an F-4 and F-14 RIO, recalls the evolution of Phantom back-seaters:

“The Navy started with the NAO (Naval Aviation Observer) in the back seat. In 1968, NAO became NFO (Naval Flight Officer) or RIO in fighters. Just about all NAOs were frustrated pilots but couldn’t fill the front pit because of vision problems. There were also a number of pilots who had washed out of flight training and accepted the NFO route. A naval aviator had to have 20-20 vision to begin the program up until winging. After that, the vision requirement was subject to waiver. A running joke was that you couldn’t trust an NFO who didn’t wear glasses because you couldn’t tell what was wrong with him.

“The F-4 RIO had a basic cockpit, with no flight controls and rudimentary flight instruments, control of the electronics countermeasures, an air-mass navigation computer (that almost no one used because you had to know the winds to have an accurate reading of where you were), a UHF radio, and a TACAN (the only real navigation tool in the F-4).

“Navy RIOs did most of the talking on the radio, handled the navigation duties, and generally acted as copilot, backing up the guy in the front seat.

“In a tactical scenario, the RIO operated the Phantom’s radar and provided directive com-

mentary to the pilot in order to get the aircraft in the best possible position for the pilot to get a visual tally-ho on the target. After the pilot had a visual during a dogfight, the RIO assumed lookout duties for anything aft of the wing line and provided assistance in keeping up with wingmen and other bogies in the fight. The F-4 had no weapons-control capability in the back seat. The Navy F-4 had a probe-and-drogue refueling system, and the probe tip was actually behind the pilot’s head. The RIO would provide directive commentary for the last six feet or so as the pilot flew formation on the refueling aircraft to achieve a good plug with the refueling drogue.”

Air Force F-4s were two-pilot fighters, although the rear cockpit became the realm of weapon-system operators (WSOs), the equivalent of Navy RIOs. Triple MiG killer John Madden told historian Peter Davies of his F-4C experience: “At that stage, they put pilots in the back seat as well as the front since the leadership figured that two pilots would be a good thing. It didn’t work very well, as it frustrated the pilots. I spent two years in the back seat with experienced pilots—a good education.”

Vietnam

At the time of the Gulf of Tonkin crisis in 1964, the Navy had 13 deployable F-4 squadrons. The big-deck carriers usually embarked an F-4 and an F-8 Crusader squadron, providing fleet defense and air-superiority capabilities.

NAME THE PHANTOM CONTEST

James McDonnell’s interest in the occult was reputedly responsible for his jets’ names. In 1959, ballots were sent to 650 Navy and civilian representatives in a “Name the F4H” contest. The ballot said, “Here at MAC, we’re all aflutter trying to name our Mach 2 buster.” Five suggested names were provided, but room was allowed for other entries, as well.

“Satan” was the runaway favorite among 89 suggestions. “Ghost” and “Spook” polled second and third, with “Phantom II” close behind. Others included “Sprite,” “Specter,” “Sorcerer,” “Goblin,” and “Vampire.”

However acceptable the name “Demon” had been for the F3H, an irreligious name like “Satan” was a nonstarter.



The Naval Reserve’s VF-301 flew Phantoms at NAS Miramar from 1974 to 1984, operating the B, N, and S models. The prominent arrow and stylized “November Delta” tail code made the “Devil’s Disciples” among the most colorful F-4 units. (Photo by Bob Lawson/Check Six)



The USAF flew RF-4Cs from 1965 onward while the Marines operated RF-4B "Recon Rhinos" from 1975 to 1990. (Photo by George Hall/Check Six)

The Phantom's first combat occurred off Hainan on April 9, 1965, when four USS *Ranger* F-4Bs engaged four Chinese Navy MiG-17s. Although the Navy awarded a victory, the VF-96 crew was lost under still mysterious circumstances.

USS *Midway* F-4Bs drew first blood for Navy Phantoms with victories against two MiG-17s on June 17. It was a textbook engagement: from a 30-mile radar detection down to a five-mile head-on engagement with Sparrows. The VF-21 Freelancers had scored the first such kills in history, and it hardly ever happened again in Southeast Asia.

Phantoms produced America's only aces of the war, starting with the Navy crew of Lieutenant Randy Cunningham and Lieutenant (junior grade) Bill Driscoll aboard USS *Constellation* (CV-64) in 1972. Reflecting on the mission, Driscoll recalls:

"The pilot and RIO had a partnership based on solid team chemistry—being on the same page and accountable all the time. We all tried to develop a shared responsibility without being heavy-handed. And it seemed to work nearly all the time. During my 43-year career, I flew with and against more than 400 fighter pilots in the training squadrons and at Topgun, and I'd guess that I clicked with about 90 percent of them. That's the thing about naval aviation—you always want to be at your best and to win, no matter what. In my experience, the bet-

ter the teamwork, the better your chances of winning.

"When I went through F-4 training in 1970–71, we still practiced attack-reattack intercepts and 'free fighter-engaged fighter' tactics once we began maneuvering against the bogies. Based on the air war in Vietnam and the Ault Report, Topgun instructors Dave 'Falcon' Frost, Pete 'Viper' Pettigrew, and Dave 'Bushwacker' Bjerke said, 'Why not put both fighters on the bogies, bring more firepower to bear more quickly, and kill them sooner?'

"In combat, it's real easy to become totally focused on the enemy plane, which is why the RIO is so important. I had the 3–9 line aft, and the pilot had the 3–9 line forward. So he could do what he needed to do offensively, while I looked for other attacking MiGs or SAMs or flak traps. In three of our five kills, we went immediately from splashing the bandit to "last ditch" maneuvering against other attacking bandits. Admittedly, we were lucky, but that strategy worked for us."

Hand in glove with the Phantom mystique was Colonel Robin Olds and the 8th Fighter Wing in Thailand. Olds wrote, "I loved the Phantom. Everything about it felt right. It was light on the controls and quickly responsive to power changes, and it gave me a feeling of eagerness not normal in an object weighing more than 17 tons."

Under Olds's predecessor, who seldom flew combat, the 8th had eked out a meager kill-loss

It says "F-110A" on the nose, but it isn't. Bureau number 149405 is a Navy F4H-1F (originally F4H-1) Phantom II painted beautifully to enable the Air Force to showcase its new fighter. By the time the Air Force acquired one that it really owned, the F-110A moniker was changed to F-4C. (Photo courtesy of Robert F. Dorr)



McDonnell F-110A and RF-110A Spectre By Steve Pace and Robert F. Dorr

On January 24, 1962, the first two examples of a new Air Force fighter howled to a halt at Langley Air Force Base in Virginia and parked amid fanfare on an ice-streaked ramp. Colonels Gordon M. Graham and George Laven—both well-known WW II fighter veterans, and both shivering—climbed out after delivering the jets from the McDonnell Aircraft plant at Saint Louis, Missouri (today, operated by Boeing). In bold, black letters on the nose of each aircraft were the words “MCDONNELL F-110A.”

F-110A? Did the Air Force have such a plane?

“The whole thing was a hoax,” said Graham in a 2002 interview. “We were under pressure to show that something was happening. Langley was headquarters for Tactical Air Command (TAC), and TAC wanted us to show up with new fighters—whether we owned any or not.”

In fact, the two aircraft were F4H-1F Phantom IIs (bureau numbers 149405/149406) borrowed from the Navy with Air Force markings, the F-110A appellation, and a prominent TAC badge painted on hastily.

Graham notwithstanding, F-110A was a real designation. But the Air Force didn't own any F-110As. It never did. It never would. The F-110A existed on paper, but in reality, it was “none of a kind.”



Perhaps a reader can identify the McDonnell Aircraft Company official who is handing the keys to the F-110A to Air Force Colonels Gordon Graham (center) and George Laven (right). The Phantom II didn't use a key and the F-110A nomenclature was painted on a Navy F4H-1F. (Photo courtesy of Robert F. Dorr)

GHOST FROM THE PAST

As early as November 9, 1959, TAC opted to take a close look at the Navy's F4H-1, which was redesignated F4H-1F the following year. In Project High Speed, an Air Defense Command Convair F-106A Delta Dart was pitted against an F4H-1F in a fly-off competition to compare maneuverability, climb rate, energy (speed), range, and altitude characteristics. The Phantom II was readily judged superior. Apart from better speed and climb, the Phantom II could carry twenty-two 500-pound bombs. The F-106A carried none.

The U.S. Department of Defense (DOD) instructed McDonnell to deliver 24 F4H-1 fighters and two F4H-1P reconnaissance aircraft to the

1st Tactical Fighter Wing at Langley for service evaluation as YF-110A (Model 98DE) and YRF-110A (Model 98DF) airplanes. The Y prefix for “service test” was seldom used, and almost no one knew that McDonnell wanted to name the aircraft Spectre after (mercifully) rejecting the name Mithra, after the Persian god of light.

TAC loved the Navy's Phantom II, as an air-superiority weapon and as a fighter-bomber. But for a long and embarrassing period, TAC had an active program but no iron on the flight line. Borrowing two Navy jets, slapping Air Force paint on them, and putting war heroes in their front seats was a stopgap way of showing that something was happening. It was “purely cosmetic,” Graham said.

Not yet visible to Congress, the press, or the public were three demonstrator aircraft ordered by the Air Force: one service-test YF-110A (62-12199) and two service-test YRF-110A (62-12200 and 62-12201) models. Nor could anyone see the 26 additional F-110A fighters (F4H-1F models) due to follow.

NAME CHANGE

On September 18, 1962, before the Air Force-owned examples rolled out the factory door, the DOD, prodded by Secretary Robert S. McNamara, overhauled its aircraft-designation system. The Navy F4H and Air Force F-110 series were combined to become the joint F-4 program. Thus, the first three aircraft became the YF-4C and (the two) YRF-4C, respectively. The F4H-1F became the F-4A, the F4H-1 (the second use of this designation) became the F-4B, the F-110A became the F-4C, and the RF-110A became the RF-4C. The Spectre appellation was dropped. All service branches adopted the name Phantom II.

McDonnell went on to produce 5,057 F-4 Phantom IIs for use in the United States and hundreds more for export overseas. The Air Force procured more of them than the other services. These included F-4C/RF-4C, F-4D (Model 98EN), and the F-4E (Model 98GV-1). But no real F-110A ever flew because the name was changed before the first could take to the air.

ratio. Like the rest of the Air Force, it had barely broken even with Hanoi's MiGs, peaking at a 2-1 exchange rate. Under Olds, the Wolfpack shot to the top of the Southeast Asia league, bagging 18 MiGs, and when Olds left in 1967, the wing's kill ratio stood at 4-1.

Air Force Phantoms claimed more than 80 victories over Vietnam, but Sidewinder and radar missiles proved unreliable. Therefore, the Air Force installed 20mm gun pods on C and D models, leading to at least 11 MiGs down and five more with F-4Es' internal gatlings.



Colonel Robin Olds and his 8th TFW WSO and wingmen celebrate another MiG kill in 1967. Note "Scat" painted on the nose, the nickname of Olds's West Point roommate, Lawton Davis, whose vision kept him grounded. (Photo courtesy of Jack Cook)

On June 2, 1972, Major Phil "Hands" Handley's 432nd TFW F-4E fired four radar missiles at a high-speed MiG19 without result. Throwing a displacement roll, at Mach 1.2, "Hands" briefly tracked the Vietnamese in the only known supersonic gun kill.

Though MiG killers got the ink, infantrymen gave their hearts to close-air support crews. A notable example came during the 1968 Tet Offensive when Korean War double ace Colonel Ralph Parr escorted cargo planes supplying the besieged Marine Corps base at Khe Sanh. Despite a dangerously low ceiling plus smoke and haze, Parr repeatedly attacked communist mortar and gun positions. Half a dozen multi-barrel antiaircraft guns holed his F-4 on the first pass, but he made seven more runs through sheets of gunfire, then directed his wingman against other positions of the North Vietnamese Army. Parr's WSO, Captain Tom McManus, recalled that some of their pullouts were below the ridges. They landed with 27 holes in their Phantom's hide.

The Marines recommended Parr for the Medal of Honor, but it was denied because he reput-

edly "busted minimums" to make his attacks. He eventually received the Air Force Cross.

Southeast Asia took a heavy toll of Phantoms. The Air Force recorded 445 lost from June 1965 to the end in January 1973, including nine lost in Viet Cong rocket attacks on U.S. bases. The Navy lost 75 Phantoms and the Marines 65, attributed to enemy action. Air Force Phantom crews were credited with 97 kills versus 35 losses. Navy and Marine F-4 crews claimed 39 victories against seven losses. Between them, the "blue suits" and the "squids" accounted for 136 of the 200 U.S. shootdowns in Southeast Asia.

Handle with Care

Describing the Phantom's idiosyncrasies, instructor Joe Griffith told fellow pilot Tom Weeks about a memorable ride:

"One of our tasks in the F-4 fighter weapon school was to take the airplane vertical, then recover when it reached zero airspeed.

"Usually, it was a fairly benign maneuver IF you did not get even a tiny bit of aileron in while beginning the tail slide. An aileron extension during a vertical slide back on its tail would create a dangerous adverse-yaw situation.

"I was in the back seat as the instructor, and always trapped the stick with my knees and forearms so the student could not 'stick in' any aileron.

"Apparently, the student got some aileron in—he was rough—and defeated my efforts. The airplane slid backwards and then flopped over on its back and immediately entered a longitudinal coupling roll.

"That was so fast that I could not tell whether we were upright or inverted. The F-4 quickly began to yaw heavily. It started a highly oscillatory rotation (nose oscillating 20 degrees above and maybe 70 degrees below the horizon).

"As it continued its weird roll, I took over the aircraft and attempted to unload the stalled wing and counter the yaw with full rudder against the rotation about the vertical axis. But any stick movement forward only seemed to speed up the process.

"It was that weird roll in combination with rotation that badly confused the situation. As we were passing down through 20K, we were still entirely out of control.

"I decided to deploy the drag chute, even though I was afraid our the rolling could wind up the chute, making it useless.

"It was either try that or jump out, at that point. But I was very leery of making ejections under those odd circumstances.

"So, at about 18K feet I told the student to deploy the drag chute.

"And held my breath.

"AERIAL DRAMA AT ITS BEST."

- ERIK LARSON, #1 bestselling author of *Dead Wake*

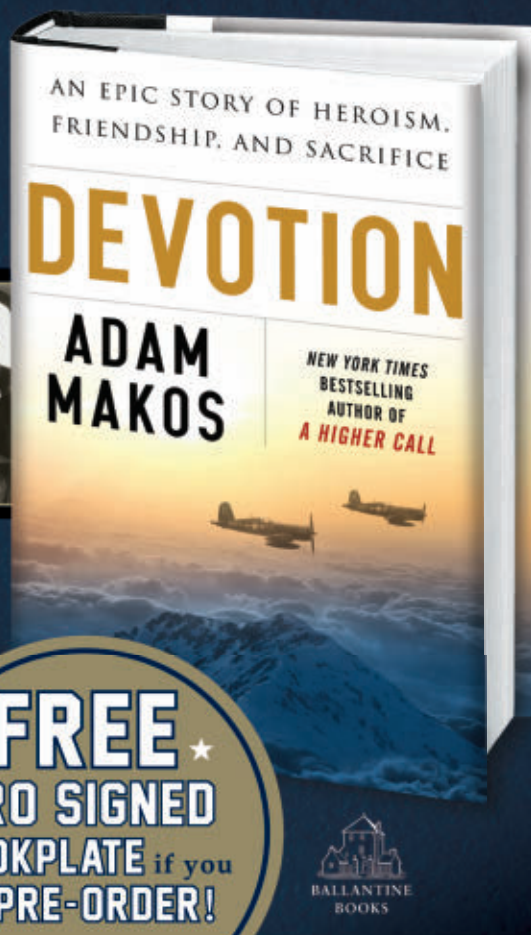


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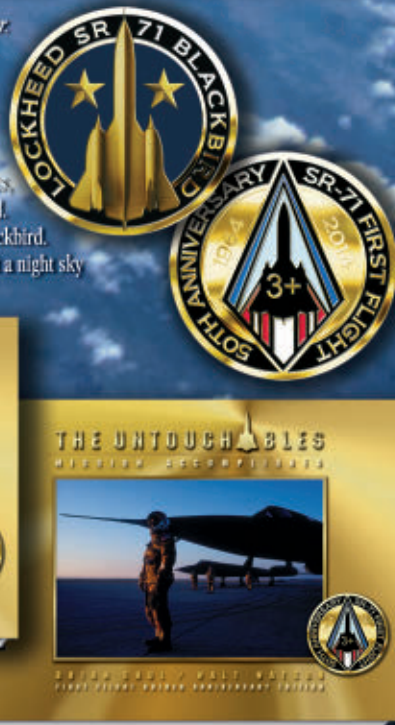
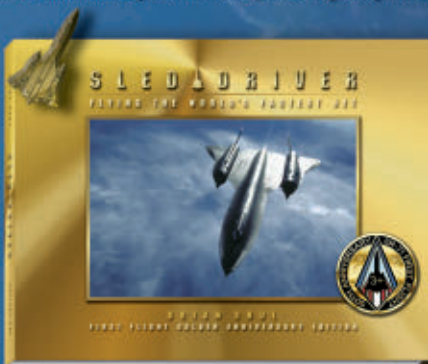
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"As soon as the drag chute came out, the F-4's coupled rolling stopped, as its nose pitched down about 60 degrees and its rotation about a vertical axis quickly subsided.

"I held neutral angle of attack on the AOA gauge, as I focused on absolutely zero aileron input.

"Airspeed quickly built to flying speed, causing the drag chute line to tear loose at about 220 knots, and I pulled out of a steep dive.

"The Phantom bottomed out and leveled around 10K.

"With our tails between our legs, we took the airplane home for an over-G checkup. It was undamaged.

"After that, I always locked out any aileron movement with my two poised hands (barely touching the stick) when students did their recovery from that zero airspeed and near vertical tail slide."

The "Wild Weasel" Phantom was the F-4G, assigned the defense-suppression mission performed by F-100s and F-105s in Vietnam. Operational from 1978, the G models performed valuable service during Operation Desert Storm in 1991. (Photo by Jim Benson/Check Six)



IMMATURE MISSILES

The phrase "immature technology" refers to committing a new idea to production before it is ready. In the Vietnam ground war, it meant the M16 rifle. In the air war, it applied to the missiles on Phantoms and other jets.

Because the original F-4's mission was fleet defense, it was not expected to engage in churning, turning dog-fights. That's what F-8 Crusaders were for. Thus, the Phantom's primary armament was the AIM-7 Sparrow, a "beam-riding" radar missile with the range and warhead to destroy Soviet bombers threatening a carrier task force. The standard loadout was four Sparrows and four short-ranged AIM-9 Sidewinder heat-seekers.

The U.S. Navy had experience with radar missiles dating from the mid-1950s, including the Phantom's predecessor, the F3H Demon, which entered service in 1956. But the Demon, though underpowered, had four 20mm cannon as did the Navy's first missile shooter, Vought's futuristic F7U Cutlass of 1951.

The Navy, however, never seriously considered a Phantom gun. When the F4H-1 was under development in the late 1950s, the Bureau of Weapons representative was then Commander Stanley "Swede"

Recon Rhinos

The F-4's spectacular performance commended it to the photo-recon mission: fast, long-legged, and rugged. In 1965, the Air Force began flying RF-4Cs at a flyaway cost of \$2.3 million. With a modular nose, the recce Phantom carried camera in three positions, capable of high- and low-level imagery. Of 499 U.S. Air Force (USAF) aircraft, 83 were lost in Southeast Asia, 72 of those due to enemy action.

While the Navy flew RA-5C Vigilantes and RF-8 Crusaders, the Marine recon unit was VMFP-3, which received RF-4Bs in 1975 and flew them until stand-down in 1990.

In all, the U.S. Navy fielded 24 regular and four reserve F-4 squadrons. Preparing to receive Tomcats, the Navy's last F-4 carrier landings were logged by Reservists in 1986. Meanwhile, 21 Marine squadrons flew the F-4.

Over 40 Regular and Reserve Air Force wings plus Air National Guard units flew F-4s and RF-4s in 24 states.

Foreign Accents

Nearly a dozen other nations flew Phantoms, starting with Britain. In 1968, the Royal Navy purchased 40 new F-4Ks for two carriers, but budget cuts limited their use to only HMS *Ark Royal*, as HMS *Eagle's* modernization was canceled. When "The Ark" was decommissioned in

Vejtas. "Swede" was a confirmed gunfighter, a double ace in World War II. He was skeptical of the all-missile concept and voiced his concern, but he was ignored. The Phantom entered service as an all-missile interceptor and remained so throughout its naval career.

Around 1963, the Navy produced numerous pods for the two-barrel M4 cannon, capable of 4,000 rounds per minute. But the pods were not meant for combat; they provided institutional experience, which eventually proved useful for the F-14 Tomcat.

Peacetime tests largely failed to demonstrate the inherent flaws in early missiles. Radar-guided weapons were especially prone to failure due to their complexity, and "heaters" were touchy about firing parameters, especially against a maneuvering target.

U.S. Air Force Phantoms claimed more than 80 victories over Vietnam, but Sidewinder and radar missiles proved unreliable. The AIM-7's wartime "batting average" was barely 9%, while Sidewinders proved 25% effective. Therefore, the Air Force evaluated the reliable six-barrel M61, which churned out 6,000 rpm. The Air Force installed 20mm gun pods on C and D models, leading to at least 11 MiGs down and five more with F-4Es' internal gatlings from 1967 onward.

Lieutenant Colonel Jim Anderson recalls, "The F-4E was very versatile with nine hardpoints, so loadout depended upon type of target and range to the target. We could carry two 370-gal. external fuel tanks, four AIM-9s, four AIM-7s, and either two triple-ejector racks with three 500-lb Mk 82s each on the inboard pylons or a multi-ejector rack with six Mk 82s on the centerline pylon or all three setups. We also carried LGBs, Maverick missiles, and other types of ordnance."

Cell Phone Inspires Chicago Doctor to Design Affordable Hearing Aid

Outperforms Most Higher Priced Hearing Aids

Reported by J. Page

CHICAGO: A local board-certified Ear, Nose, and Throat (ENT) physician, Dr. S. Cherukuri, has just shaken up the hearing aid industry with the invention of a medical-grade, affordable hearing aid. **This revolutionary hearing aid is designed to help millions of people with hearing loss who cannot afford—or do not wish to pay—the much higher cost of traditional hearing aids.**

**“Perhaps the best quality-to-price ratio in the hearing aid industry” — Dr. Babu, M.D.
Board-Certified ENT Physician**

Dr. Cherukuri knew that untreated hearing loss could lead to depression, social isolation, anxiety, and symptoms consistent with Alzheimer’s dementia. **He could not understand why the cost for hearing aids was so high when the prices on so many consumer electronics like TVs, DVD players, cell phones, and digital cameras had fallen.**

Since Medicare and most private insurance do not cover the costs of hearing aids, which traditionally run between \$2,000-\$6,000 for a pair, many of the doctor’s patients could not afford the expense. Dr. Cherukuri’s goal was to find a reasonable solution that would help with the most common types of hearing loss at an affordable price, not unlike the **“one-size-fits-most” reading glasses** available at drug stores.

He evaluated numerous hearing devices and sound amplifiers, including those seen on television. Without fail, almost all of these were found to amplify bass/low frequencies (below 1000 Hz) and not useful in amplifying the frequencies related to the human voice.

Inspiration From a Surprising Source

The doctor’s inspiration to defeat the powers-that-be that kept inexpensive hearing aids out of the hands of the public actually came from a new cell phone he had just purchased. **“I felt that if someone could devise an**

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affordable device like an iPhone® for about \$200 that could do all sorts of things, I could create a hearing aid at a similar price.”

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The high cost of hearing aids is a result of layers of middlemen and expensive unnecessary features. Dr. Cherukuri concluded that it would be possible to develop a medical-grade hearing aid without sacrificing the quality of components. The result is the **MDHearingAid PRO**, well under \$200 each when buying a pair. **It has been declared to be the best low-cost hearing aid that amplifies the range of sounds associated with the human voice without overly amplifying background noise.**

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—Gerald Levy

*“I have a \$2,000 Resound Live hearing aid in my left ear and the MDHearingAid PRO in the right ear. **I am not able to notice a significant difference in sound quality between the two hearing aids.**”*

—Dr. May, ENT Physician

*“They work so great, my mother says she hasn’t heard this well in years, even with her \$2,000 digital! **It was so great to see the joy on her face. She is 90 years young again.**”*

—Al Peterson

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Patiently awaiting their fate, Phantoms of all services are stored at Davis-Monthan Air Force Base, Tucson, after decades of valiant service. (Photo courtesy of Ted Carlson)

1978, naval Phantoms latered to the Royal Air Force (RAF). They eventually served with 14 RAF squadrons plus a training unit and a permanent flight in the Falklands.

The Israeli Air Force (IAF) obtained upward of 250 Phantoms, dubbing them *Kurnass*, or Sledgehammer. One of the IAF's leading aces is Brigadier General Iftach Spector. In 2009, he told *Air & Space*, "The Mirage was a lightweight, agile fighter with performance almost identical to the MiG-21. The F-4, on the other hand, was a large behemoth of an aircraft, fast and strong but not very maneuverable. When the F-4 arrived in 1969, it was a very hot airplane. It was difficult to reach in our Mirages. The Phantom was a more sophisticated aircraft. It was not easy to fly, but it gave you a special feeling when you succeeded."

During the October 1973 Yom Kippur War, five *Kurnass* squadrons took heavy losses from Egyptian and Syrian defenses, especially from surface-to-air missiles. Figures vary, but perhaps 43 F-4s were destroyed or written off during the three-week-long war.

To offset attrition, as many as 40 Phantoms were delivered to Israel as part of Operation Nickel Grass, a U.S. reinforcement effort. And although IAF F-4Es scored heavily against Arab MiGs and Sukhois, one of the most notable missions pitted Phantoms against Egyptian Mi-8 helicopters delivering commandos into Sinai. *Kurnass* crews claimed 14 Hips in two missions.

Iran

Iran received 225 Phantoms to equip eight squadrons including a recon unit, which is now known as the Islamic Republic of Iran Air Force.

After the war, perhaps only 30 Iranian F-4s remained, although aircraft and spares were

allegedly obtained internationally. Current inventory is unknown but might run to more than 50, as Iranian Air Force Phantoms reportedly struck ISIL (the self-proclaimed Islamic State of Iraq and the Levant) targets in late 2014.

"Phantom Pharewells"

The United States retired Phantoms in 1996, Israel in 2004, and Germany in 2013. The last Phantom delivered was an F-4EJ in 1981, bringing the total to 5,195.

Today, of the 11 foreign users, Japan, Turkey, South Korea, Greece, Egypt, and Iran still fly the Phantom, 55 years after it entered service.

A bittersweet epilog to the Phantom story involves QF-4 drones. Turning the erstwhile global-yardstick fighter-bomber into an aerial target rankled many "Phantom Pfliers," but the "needs of the service" prevailed. The U.S. Navy's China Lake test center retired its surviving drones in 2004, and Tyndall AFB bid farewell in May 2015.

Meanwhile, let Robin Olds have the last word on the Phantom:

"Like a brooding hen, she squats half asleep over her clutch of eggs. Her tail feathers droop, and her beak juts forward belligerently. Her back looks humped, and her wingtips splay upward. Sitting there, she is not a thing of beauty. Far from it. But she is my F-4, and her nest is a steel revetment—her eggs six 750-pound bombs. This avian has fangs—very unbirdlike. They nestle under her belly and cling to her wings. She is ready to go, and so am I." ✚

Thanks to Lieutenant Colonel Jim Anderson; Commanders Bill Driscoll, Jan Jacobs, and Jack Woodul; Captain Lonny McClung; Tom Weeks; Christina Olds; Rick Morgan; and the Phantom Society.

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An Icon's Last Bow

“PHINAL PHLORIDA
PHANTOMS”:
QF-4S AT TYNDALL

BY LIEUTENANT COLONEL “CRICKET” RENNER,
USAF (RETIRED)

As the powerful J79 engines ignite the raw fuel into orange flames spewing out of the afterburners, the Phantoms roar down the runway, quickly accelerating the jets into the humid skies. After rejoining, the F-4s cruise out over the water on another mission. While the skies this morning appear calm and serene, there is a lethal enemy lurking about. Half an hour later, the Phantoms are engaged in mortal combat. The young fighter pilot excitedly shouts, “Fox Two!” over the radio, indicating that he has just fired an AIM-9 Sidewinder—his first-ever live air-to-air missile. The missile streaks towards its target, achieving a direct hit and a kill.





This shark-mouthed F-4E looks like it could be returning from another combat mission over North Vietnam. Instead, it is a QF-4E of the 82nd Aerial Target Squadron from Tyndall Air Force Base with the coast of Florida and an afternoon thunderstorm over the Gulf of Mexico as its backdrop. (Photo by John Dibbs/planepicture.com)

Although this scene is reminiscent of many engagements in the skies over Vietnam, today's encounter takes place off the coast of Florida, in the Gulf of Mexico. And another big difference is that the victim in this scenario is the Phantom—one of the last QF-4s modified by the U.S. Air Force (USAF) for use as a full-scale aerial target (FSAT).

First flown by the USAF in 1963, these are some of the Phantom's last days in active service. After serving in several different versions, the Phantom found a new life as a QF-4 FSAT when it started replacing the QF-106 in the late '90s. The 82nd Aerial Target Squadron (ATRS) at Tyndall Air Force Base (AFB), Florida—home to the QF-4 for almost 20 years—launched its final Phantom flights on May 27, 2015. QF-4E serial number 71-237 was the last Phantom destroyed over the Gulf of Mexico on that day. A few days later, on June 3, Lt. Col. Ronald King (commander of the 82nd ATRS Detachment (Det) 1 at Holloman AFB, New Mexico) flew the QF-4 solo for the first time, making him the last USAF pilot who will ever learn to fly the Phantom. Lieutenant Colonel "Cowboy" Garrison, commander of the 82nd ATRS, and his predecessor, Lt. Col. "Rhino" Inman, were two of the last active duty Phantom drivers at Tyndall.

QF-4 Conversion

Having received its first QF-4 in 1997, the 82nd ATRS gained its last one on November 19, 2014. That aircraft, QRF-4C 68-0599, was in storage at the "Boneyard" at Davis-Monthan (DM) AFB, Arizona, for more than 20 years. Inman, commander at the time, remarked, "It is bittersweet to receive the last QF-4. The aircraft has served the Air Force and the nation so well for so long. It is truly the end of an era."

When the Phantoms were pulled out of storage from the Boneyard, the 309th Aerospace Maintenance and Regeneration Group (AMARG) at DM refurbished the aircraft to make them flyable. They were then flown to Mojave Airport, California, where BAE Systems took about 160 days to convert the aircraft to drones. Over the life of the program, the USAF took delivery of 314 QF-4s—converted from F-4E multirole fighters, F-4G "Wild Weasels," and RF-4C Recce Phantoms.

To convert an F-4 to the QF-4, BAE Systems added a digital control system to enable unmanned flights, which permits remote activation of the flight controls, throttles, flaps, landing gear, brakes, landing parachute, and tailhook. They also added a scoring system, transponder, second autopilot, and GPS for unmanned formation flight. In addition, the F-4E's nose-mounted 20mm gun was replaced with ballast. Most of the QF-4s also received a makeover when the outer portions of the wings, horizontal stabs, and the entire vertical tail were painted orange, distinguishing the aircraft as a drone. (From 2005 until sequestration hit the USAF in 2013, Tyndall flew a few Phantoms painted in historic paint schemes for the USAF's Heritage Flight.)

Garrison describes some of the process. "The drones show up with 300 flyable hours. In a perfect world, we would fly them down to 290 hours, convert them to unmanned configuration, and then have 10 flying hours to kill them. I like to keep about 20 drones here at any given time: five unmanned, five in some state of conversion, and 10 flyable or undergoing maintenance."

While some active-duty pilots, like "Cowboy" Garrison, flew the QF-4, all the unmanned controllers are U.S. government civil servants. Garrison adds, "They are dual-qualified to fly QF-4s (and QF-16s) both in the manned and unmanned configuration. A few are tri-qualified, meaning they also fly subscale targets."

Inman describes why all the unmanned controllers are civilians: "There is no requirement to have a Government Schedule (GS) employee/pilot fly the Full Scale (QF-4/QF-16) as an unmanned target. However, the training program for a fully qualified controller is extensive. Anecdotally, it takes the better part of two years to achieve full qualification as a controller. For that reason, it does not make sense to qualify an active-duty pilot as a controller."

The QF-4s (and their replacement QF-16s) fly three types of missions at Tyndall: manned continuation training (CT), manned remote, and not under live local operation (NULLO).


"Cowboy" further describes the missions: "Manned CT sorties are flown for aircrew training and proficiency with the basic airplane. They involve a mixture of tactical maneuvering plus instrument training. We also use these sorties to

82ND AERIAL TARGET SQUADRON HISTORY

THE 82ND FIGHTER SQUADRON

was formed on January 13, 1942, as part of the 78th Fighter Group, which achieved fame flying black-and-white-checkerboard nosed P-47s and P-51s from Duxford, England, during World War II. Postwar, the squadron flew F-84, F-51s, F-94s, F-89s, F-86s, and F-102s in Germany, the United States, and Iceland. In the early 1970s, the squadron became a pilot-training unit in Texas, flying the T-37 until it was deactivated. Reactivated in 1981, the squadron ironically received the Delta Dagger again, as the QF-102 from 1981 to 1984. The squadron also used the QF-100 from 1983 to 1993, prior to converting to the QF-106 from 1991 to 1996. Gaining the QF-4 in 1997, it flew the Phantom until starting the conversion to the QF-16 in 2013.





After being retrieved from the Boneyard, most QF-4s remained in their retirement paint scheme (except for the addition of orange wingtips and tail). Some, however, like this beautiful QF-4E, received a fresh coat of paint for the USAF Heritage Flight Program. This particular Phantom, QF-4E serial number 74-1638, retired from George AFB, California, to the Boneyard in 1990. It rested there until being called out of retirement in 2008 to serve once again. It was one of the "Phinal Phantoms" to depart Tyndall AFB and now resides at Holloman AFB, New Mexico. (Photo by John Dibbs/planepicture.com)





The unique and iconic shape of the Phantom, captured as only John Dibbs can! (Photo by John Dibbs/planepicture.com)

provide training assets to the local F-22s as blue air strikers or red air bandits.

"Manned remote sorties are flown for controller training and proficiency. The controller operates the target from takeoff to landing with a safety pilot in the cockpit. The safety pilot only steps in if something goes wrong or to expedite training. We put a pilot in the cockpit to avoid the massive coordination and restrictions associated with flying unmanned targets during training sorties. "NULLO are the true unmanned, target sorties. These are large productions involving coordination with target controllers, software engineers, and several Tyndall base agencies, like the security forces, plus our own watercraft required to block off a portion of the gulf near the droneway for takeoff and landing."

The unmanned QF-4s on NULLO sorties are launched from a 7,000-foot-long runway. The

"droneway" is oriented so that the unmanned QF-4 launches straight over the water, reducing the risk to the local population in the event that the data link is lost. Also, the NULLO jets carry an explosive charge to destroy the aircraft if it is damaged and becomes uncontrollable, or in the event that the data link (and thereby control) is lost.

Drone Killers

The USAF has used unmanned aircraft as targets for fighter-pilot training and weapons-system evaluation since 1959. In fact, U.S. law requires a missile system to undergo lethality testing before it can enter full-scale production. That means live-firing the missile at a combat-configured, full-size aircraft. Despite the rapid proliferation of commercial drones, only a real aircraft offers the flight characteristics, performance envelope (including high altitudes and supersonic speeds), radar and infrared signatures, and damage resistance of a real aircraft. According to Inman, "The 82nd ATRS is the only organization that provides aerial targets for every missile tested or evaluated by the Air Force."

Garrison proudly adds, "We provide the only full-scale targets in the Department of Defense. We support any and all customers. If your weapon or platform needs a target, and you have a 'target kill authorization' from HQ USAF, we'll fly for you. We support USAF units, Navy and Marine units, developmental and operational test units, and commercial customers, like Lockheed Martin and Boeing. We even support foreign customers, like Singapore and Denmark."

Because almost all of the missiles fired at the drones substitute a telemetry pack in place of the live warhead, you would think that the drones would survive many live-fire missions. In an attempt to help the drone survive, the controllers normally fly a last-ditch maneuver, trying to create just enough miss distance to avoid a direct hit. The accuracy of today's air-to-air missiles, however, is such that the drones often die when the missile hits, making the drone spin out of control.

Once the F-4s are converted to unmanned drones, Garrison says, "their life expectancy can vary between 15 minutes and three or four sorties. Sometimes they die the first time out, and we've had some fly several sorties before finally being killed. It generally depends on the missile/aircraft being tested. The AIM-9X is a pretty reliable drone killer. Most of the weapons we test don't have live warheads, so it requires a direct hit to kill the drone, but we have seen the F-4 soak up several direct hits and keep flying. We average shooting down one or two drones per month."

On some missions, however, the Headquarters USAF/Testing and Evaluation branch grants a "kill authorization," meaning the controllers won't try to avoid the inbound missile. The 82nd ATRS also flies a variety of subscale drones, so the

Preparing for a manned sortie, this Phantom Driver is about to settle into his office for another day's work. (Photo by John Dibbs/planepicture.com)



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4TH GENERATION DRONE: THE QF-16

WHILE THE PHANTOMS ARE NOW GONE from Florida's skies, the 82nd Aerial Target Squadron continues its mission with a new drone: the QF-16. On September 19, 2013, the first unmanned QF-16 took off from Tyndall Air Force Base, and the first QF-16 to die was just under a year later, on September 5, 2014. Boeing is restoring the QF-16s from retired F-16 Block 15, 25, and 30 versions stored at Davis-Monthan Air Force Base in Arizona.

Lieutenant Colonel "Rhino" Inman says, "The QF-16 initiates the next chapter in advanced aerial targets, predominantly in support of more technologically superior air-to-air weapons test and evaluation programs. The QF-16's advantages over the QF-4 are that it is smaller and has a reduced radar cross section as well as its increased maneuverability. Most important, the maintenance and logistical footprint of a frontline fighter allow the ease of obtaining parts for an aircraft still in the USAF inventory."

Lieutenant Colonel "Cowboy" Garrison adds, "We get much more maneuverability out of the QF-16 than we did the QF-4: It can pull 9Gs, go supersonic, and climb up to 55,000 feet, just like the frontline fighters. We now have that as a target."

The U.S. Air Force plans to convert 210 Vipers to QF-16s.



Past, present, and future:
The QF-16 has now replaced
the QF-4 with the 82nd
ATRS. (Photo by John Dibbs/
planepicture.com)

"kill authorization" is often for a small drone. Whether a full-scale or a subscale drone is used and whether or not "kill authorization" is granted by headquarters, Garrison says, "really depends on the test requirements and the drone flow. The project determines what target they need; they ask for a 'kill authorization' and then we allocate them a drone when they get the thumbs up from Headquarters Air Force. We always have enough targets 'in stock' to provide whatever a customer needs." [The author, in his days flying the F-15C Eagle in an operational test and evaluation unit, shot down two QF-4s in one pass—each Phantom receiving a direct hit. On that mission, however, we had "kill authorization" for only one target—oops, sorry!]

For testing new aircraft, missiles, and software, the QF-4s provided, according to Garrison, "realistic threat representations. We also have the ability to exceed current threat capabilities to find 'room for improvement' in currently fielded weapons and software."

In addition to testing, the 82nd ATRS supports aircrew training with live missile shoots. Garrison says, "For aircrew training, think of it like the emphasis behind the Red Flag exercises. If I can take a young wingman and let him fire his first live weapons in a relatively controlled environment, I can increase his chances for success in a true combat scenario." In 2014, the 82nd ATRS supported 295 live missile shoots valued at \$99 million.

Flying the "Phabulous Phantom"

Both "Cowboy" and "Rhino" are career Viper drivers. Other than their time in pilot training, in fact, neither had flown anything other than the F-16 prior to joining the 82nd ATRS. Both men also have an extensive background in operational Viper assignments as well as serving in an operational test and evaluation squadron. That experience gave them a good understanding on how to integrate the QF-4 program into the USAF's operational, training, and testing programs. It also gave them a fighter pilot's appreciation of flying the QF-4.

"Cowboy" compares the aircraft from different generations: "The F-16 and F-4 are both sports cars. The F-16 is more like a quick and nimble Porsche, where the F-4 is a big, powerful muscle car, like a 1970s Mustang. One of the most impressive things about the QF-4 was the low-altitude ability. It was rock solid down low compared to the Viper, which gets bounced around a good bit, especially on hot days. It required much smoother control inputs at medium/high altitudes and especially at lower airspeeds. There just wasn't a lot of error margin in maneuvering. The visibility in the QF-4 was terrible, too, even in the front hemisphere. Of course, I compare that to the Viper, which has the bubble canopy and no canopy bow."

According to "Rhino," flying the F-4 was his "Vietnam-appreciation tour. While flown in combat in many other operations, Vietnam is the most notable operation where the F-4 was

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Taking off into the sunset, the Phantom has now departed from Florida. It will continue serving as a drone in New Mexico for a couple more years until being finally retired (again) from USAF service. (Photo by John Dibbs/planepicture.com)

used extensively. When I flew the F-4, I found it difficult to fathom those great warriors of the past who flew this same aircraft in combat. The F-4 has human-factor issues that have been mitigated by design in newer aircraft, like the F-16. While the F-4 is not overwhelmingly difficult to fly, I struggled to understand how it was employed as well as it was. I developed a great deal more respect for those aviators that did."

Garrison adds, "Most of the interesting stories involve the QF-4 E-model. The E has a stability-augmentation system that is activated and deactivated via a button on the stick. That same button also disengaged the remote pilot/controller when someone flew as a safety pilot. So on touch-and-go approaches, the safety pilot would click off the remote controller via that button when it was time to power up and take off again on a touch-and-go. (We do multiple touch-and-gos every training sortie because landing is the most demanding part of being a controller.) If the safety pilot was experiencing a 'wild ride' down the runway and inadvertently held the disengage button depressed, he also kept the stability-augmentation system disengaged. That results in the F-4 getting a bit 'squirrely' at low altitude and adding some more excitement to an already tense situation. Since we film and show every approach and landing real time in the squadron, it was important to watch the touch-and-gos because they were often entertaining."

Flying often as a manned chase, Garrison describes a typical live-missile shoot sortie: "For many reasons, we try to mirror a 'normal' flying-sortie flow: brief, ground ops, fly the mission, return to base, debrief, etc. There is generally a mass brief three hours prior to takeoff, which includes the shooters, the drone controllers, the chase aircraft, safety, mission commanders, and the range controllers (GCI). Following that, we'll have an internal 82nd ATRS brief about two hours prior to

takeoff, which includes the drone controllers and the chase pilot. In the background, maintenance has towed the jet(s) out onto the drone runway, and the aircraft has been preflighted by another pilot. We start the drone and begin running the final ground checks 45 minutes prior to takeoff. At 15 minutes prior, a chase ship launches from Tyndall, does a quick check for boat traffic, and then gets into position to chase the drone off the drone runway. The drone will take off with a manned jet chasing it. They will knock out any required airborne ops checks (chaff, flares, altimeters for low alt, etc.) and then the chase aircraft goes into holding. The drone flies the profiles as required and hopefully dies a 'Spartan' death. If not, the chase aircraft rejoins with it and chases it back to a landing. The debrief process basically works in reverse with the 82nd ATRS controller and chase pilot talking things through before the large, complete Weapons System Evaluation Program debrief."

Conclusion

After such a long and complex live-missile firing mission, the young fighter pilot debriefs with engineers to discuss the details of how well his missile and weapons system worked. The results get compiled by the USAF and are fed back to the missile and aircraft manufacturers, making the next generation of air-to-air missiles even deadlier. The QF-4 has provided almost two decades of sacrificial service to obtain this important data.

"Cowboy" says that one of the most interesting things in flying the QF-4 is when pilots fly to other bases. "Everywhere we land (military or civilian field), the QF-4 draws attention. People clamor to take pictures, and it also seems like every crew chief has an F-4 story from his past. It's fun to bring that piece of history out and let people relive their glory days. We also get a fair amount of inquiries from retired pilots and crew chiefs, wondering if one of their old jets is now a target and when we might kill it. Everybody is in agreement that they'd rather have these old jets die a Spartan's death in a fireball compared to rusting away in the desert. Of note, the final QF-4 is scheduled to depart Tyndall in late July on its way to Holloman."

"Rhino" concludes, "The plan has always been for the QF-4 to go out in a blaze of glory, culminating at Holloman AFB, with the 82nd ATRS, Det 1. However, if any QF-4s survive, there is a contingency plan to send the few remaining back to the Boneyard as the production of QF-16s meet the demand of the customer."

After over half a century, the Phantom continues to serve its country for a little while longer. Although it is now the hunted rather than the hunter, the QF-4 soldiers on, sacrificing itself for the benefit of the next generation of American fighter pilots, aircraft, and missiles. Here's a toast to the "Phabulous Phantom"! ✚



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Originally designed in the 1920s, the Hawker Hart present at Royal Air Force Station Habbaniya gave birth to a seemingly endless array of similar-appearing descendants, such as this Demon fighter. (Photo by John Dibbs/planepicture.com)



HABBANIYA SURPRISE

BATTLE OF BRITAIN, IRAQI STYLE

BY KELLY BELL

At 2:00 on the morning of 30 April 1941, employees of the British Embassy in Baghdad were awakened by large military convoys rumbling from al-Rashid barracks, across bridges and out into the desert in the direction of the town of Habbaniya, Iraq, where the Royal Air Force (RAF) maintained its largest flight school in the region. The embassy officials immediately sent wireless warnings to the school's ranking commander, Air Vice-Marshal H. G. Smart. With his base not set up nor prepared for combat, Smart initially could think of little to do other than to sound the general alarm, but in his state of surprise and confusion, he forgot to announce the reason the alarm was blaring. The facility quickly became a bedlam of scared, sleep-sodden, bewildered cadets, instructors, and sundry personnel.

Instructors and Cadets to the Rescue

In the spring of 1941, the RAF No. 4 Flying Training School at Habbaniya included just 39 men who knew how to fly an airplane, yet by the end of May, their battle was over and won. The Iraqis and their German allies were soundly trounced by what had recently been classified as “unqualified personnel.” These instructors (few of whom had combat experience) and their cadets aborted an operation that might well have brought Britain to her knees.

There are those who call the fight for Habbaniya’s airfield the Second Battle of Britain. Fought months after the exhaustively chronicled air campaign over the British Isles and English Channel, which blunted German hopes of neutralizing the United Kingdom, this Mideast aerial

Below: Note that the city of Habbaniya falls between two names well known today: Ramadi and Fallujah. (Map courtesy of commons.wikimedia.org)

Bottom: A Hawker Audax flown by RAF Wing Commander Morewood in 1937. (Photo courtesy of EN-Archive)



shootout was at least as crucial as the 1940 Battle of Britain to the outcome of the Second World War, yet today it is entombed in obscurity. It was fought and won against daunting odds by the teachers and students of an RAF flight-training school.

The prize over which this campaign raged was crude oil. With its powerful transatlantic American partner still not involved in the war, England’s oil jugular lay through Iraq. Following his successful coup in early April 1941, militantly anti-British attorney Rashid Ali al-Gaylani set himself up as “Chief of the National Defense Government.” This Anglophobic barrister’s dearest ambition was to expel via military force all Englishmen from the whole of the Middle East. He set about enlisting the assistance of like-minded Egyptians who made vague promises of organizing an uprising of their army in Cairo. He contacted German forces in Greece (which had just fallen to the Third Reich) to let them know he would be delighted to receive their support. He also let the newly arrived German Afrika Korps know that they could count on the support of pro-Axis Vichy French forces in Syria to provide easy access to Iraq. Finally, he told the Germans that he would secure for them unrestricted use of all military facilities in Iraq whether or not they were held by the British.

His Majesty’s forces in the region were falsely reassured by the fact that, technically, Iraq still sided with the Allies. A 1927 treaty politically bound the United Kingdom and Iraq. Because of this, the Brits figured Gaylani’s uprising would result in little more than the possibility of scattered anti-England demonstrations by civilians. This dangerous misconception persisted until the pivotal Habbaniya Airfield came under attack by powerful elements of the regular Iraqi military.

Habbaniya: Pivotal but Unprepared

Just 60 miles from Baghdad, Habbaniya was coveted for its location and for the facilities it possessed. This airfield was essential for any massed military forces to consolidate themselves in Iraq. Habbaniya was tactically vulnerable to attack. Sited on low ground next to the Euphrates River, it is overlooked 1,000 yards to the south by a 150-foot-high plateau. Gaylani casually proffered the base to his German friends, never dreaming that the inconsequential flight-school students would put up any kind of fight.

Yet a handful of half-trained kids and young instructors transformed the school into an operational RAF fighter base, tossing dogma from their open cockpits as they turned their superiors’ hair gray with ongoing displays of spectacular contempt for doctrine. Putting elderly, obsolete, and fragile trainers through endless strut-straining, wire-popping gyrations and attacks (both as fighters and bombers), these fiery, fearless youngsters repeatedly blunted enemy threats. Such



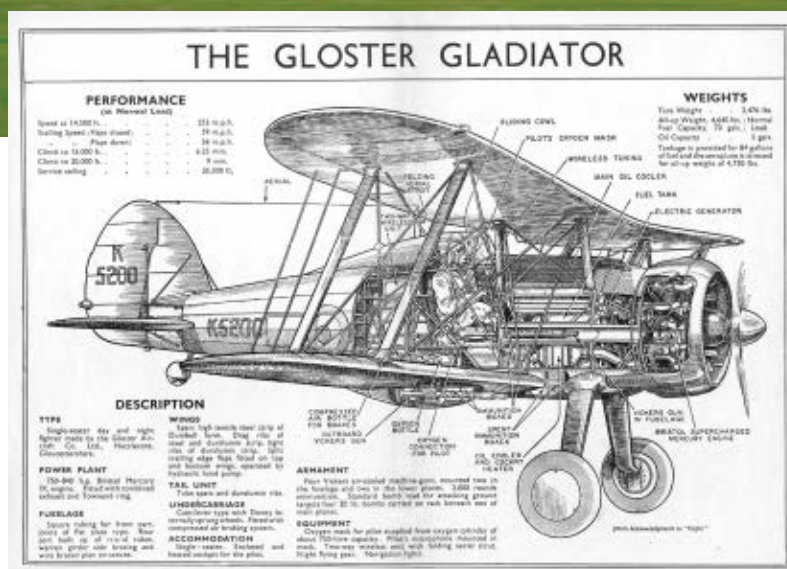
GAYLANI CASUALLY PROFFERED THE BASE TO HIS GERMAN FRIENDS, NEVER DREAMING THAT THE INCONSEQUENTIAL FLIGHT-SCHOOL STUDENTS WOULD PUT UP ANY KIND OF FIGHT.



fanatical determination to fight to their best potential regardless of convention multiplied the combat ability of these cadets as they hurled back their numerically superior, better-armed foes and secured the country's petroleum lifeline. By saving the flow of crude oil, it was a campaign at least as significant as the Battle of Britain, yet it has long been consigned to obscurity by its isolated location and a dearth of war correspondents and photographers on the scene.

During the chaos that followed the alarm, the Iraqis arrived and commenced setting up artillery along the 200-foot-high plateau running along the far side of the base's landing field. This was a ghastly surprise for Smart, whose Intelligence Office had assured him that, should any local hostilities break out, the worst he need expect would be a handful of unruly civilians.

At daybreak, he sent out an old Audax trainer to reconnoiter the surroundings. The pilot returned to report that the highlands were alive with what looked to be more than 1,000 soldiers with field pieces, aircraft, and armored vehicles. Smart had about 600 Iraqi auxiliaries in the compound. These men were of Assyrian ancestry who devoutly hated Iraqis of different extractions, such as those menacing the camp. Yet would these locals fight for the British if their countrymen launched a ground attack? There were also about 400 English officers and men recently transferred from India. Numerically, the attack-



ers held only a slight edge, but they appeared to be better armed.

At 6:00 a.m., an Iraqi officer appeared at the camp's main gate and delivered the following letter:

For the purpose of training we have occupied the Habbaniya Hills. Please make no flying or the going out of any force of persons from the cantonment.

If any aircraft or armored car attempts to go out it will be shelled by our batteries, and we will not be responsible for it.

Such comportment of forces on a "training exercise" struck Smart as disquietingly inappropriate, so he typed the following reply and gave it to the courier:

Above: The Gloster Gladiator was the most capable aircraft at the training school until the arrival of a few Hurricanes and Blenheims. (Photo by John Dibbs/planepicture.com)

Inset: Although obsolete by the time WW II started, the Gladiator fought well against more modern foes. (Drawing courtesy of John Dibbs Archives)

Any interference with training flights will be considered an act of war and will be met with immediate counter-offensive action. We demand the withdrawal of the Iraqi forces from positions that are clearly hostile and must place my camp at their mercy.

Smart's next move was to set his ground crews to work digging World War I-style trenches and machine-gun pits around the perimeter, a notoriously ineffective deployment versus aerial attack

two bomber squadrons under Wing Commander Larry Ling. Wing Commander John Hawtrey commanded the first squadron of 12 aircraft armed with two 250-pound bombs apiece. The second Audax squadron was comprised of nine machines with eight 20-pound bombs each, and run by an engineer named Selwyn-Roberts. The last squadron was made up of 43 aircraft of three types. These trainers would serve as both fighters and bombers under Squadron Commander A. G.

Dudgeon, who divided them into three independently operating flights.

Dudgeon would personally command 27 Oxford bombers. Flight Lieutenant Richard "Dicky" Cleaver led the second flight of nine Gladiator biplane fighters. The remaining seven planes, Gordon bombers, were under Flight Lieutenant David Evans.

Although these flying machines were old, there was an impressive number of them. The problem was finding enough pilots. Smart managed to assemble 37 men who at least knew how to fly, but only three had combat experience. There were even fewer seasoned bombardiers and gunners.

Even though they had fewer planes, the Iraqis were flying new Italian Breda 65 single-engine fighters and Savoia-Marchetti SM.79-II Sparviero fighters. They also had Audaxes with newer, more powerful engines than those being flown by the British.

On the evening of 30 April, the British ambassador to Iraq radioed Smart, proffering the opinion that the Iraqi actions, up to that point, were acts of outright war, and urged Smart to immediately launch air attacks. The ambassador also reported that he had informed the Foreign Office in London of the Habbaniya situation and that His Majesty's diplomats both in Baghdad and London were urging the Iraqis to with-

draw. There had been no response.

The Allies in Habbaniya received four more wireless messages in the wee hours of 1 May. First, the ambassador promised to support any action that Smart decided to take, although Smart would likely have preferred to receive this backing from a high-ranking military figure. Second, the Commander-in-Chief India (Habbaniya was still part of India command) checked in to advise Smart to attack at once. The third dispatch was from the British commander in nearby Basrah to inform Smart that, because of extensive flooding, no ground forces could be sent from Basrah but, perhaps, aerial support could be provided. Smart finally heard from London: The Foreign Office called to authorize him to make any tactical decisions himself, on the spot. Again, it

SMART'S NEXT MOVE WAS TO SET HIS GROUND CREWS TO WORK DIGGING WORLD WAR I-STYLE TRENCHES AND MACHINE-GUN PITS, A NOTORIOUSLY INEFFECTIVE DEPLOYMENT VERSUS SHELLING FROM ELEVATED POSITIONS.



Gloster Gladiators of 94 Squadron RAF Detachment, being guarded by Arab Legionnaires during a refueling operation. (Photo courtesy of EN-Archive)

and shelling from elevated positions. Smart knew, however, that, if a siege came, it eventually would require the attackers to make a ground assault to be successful. Bereft of their now-digging ground crews, the cadets and pilots set to arming, fueling, and positioning their aircraft in the sweltering heat. The young men shoved their planes into positions that struck them as the safest possible—behind buildings and trees—but the aircraft were still unavoidably vulnerable to the overlooking gun positions. Strangely, the Iraqis waited a full 36 hours before opening fire.

Hasty Aerial Organization: The First Strikes

The Britons divided their elderly aircraft into three squadrons. The Audaxes would serve as

was civilian (not military) figures telling him to start fighting.

Smart contacted his ambassador in Baghdad to issue an ultimatum to the Iraqi troops that were menacing Habbaniya to commence withdrawing by 8:00 a.m. on 2 May. In this way, should the enemy refuse to heed the deadline, the whole day would be available for combat.

Smart was still unsure of the extent to which he was authorized to act. How far would London support him should he attack or counterattack forces of a country not clearly defined as an Axis power? His maddening uncertainty was finally banished by a 1 May telegram from Prime Minister Winston Churchill. It read, "If you have to strike, strike hard."

This emboldened the harried commander to finally make the first move. Realizing how powerful the forces were outside his makeshift defenses, he could see that allowing them to strike first (especially if they launched a ground attack) would almost certainly result in his base being overrun. Smart decided to launch as powerful an air attack as he could at dawn on 2 May. He had learned from a radio message that 10 Wellington bombers had arrived at Basrah. These planes were from the RAF 70 Squadron and would presumably assist in the attack on the Iraqis. Success of an aerial assault against well-dug-in armored forces seemed unlikely—it had never before been achieved. Yet Smart was

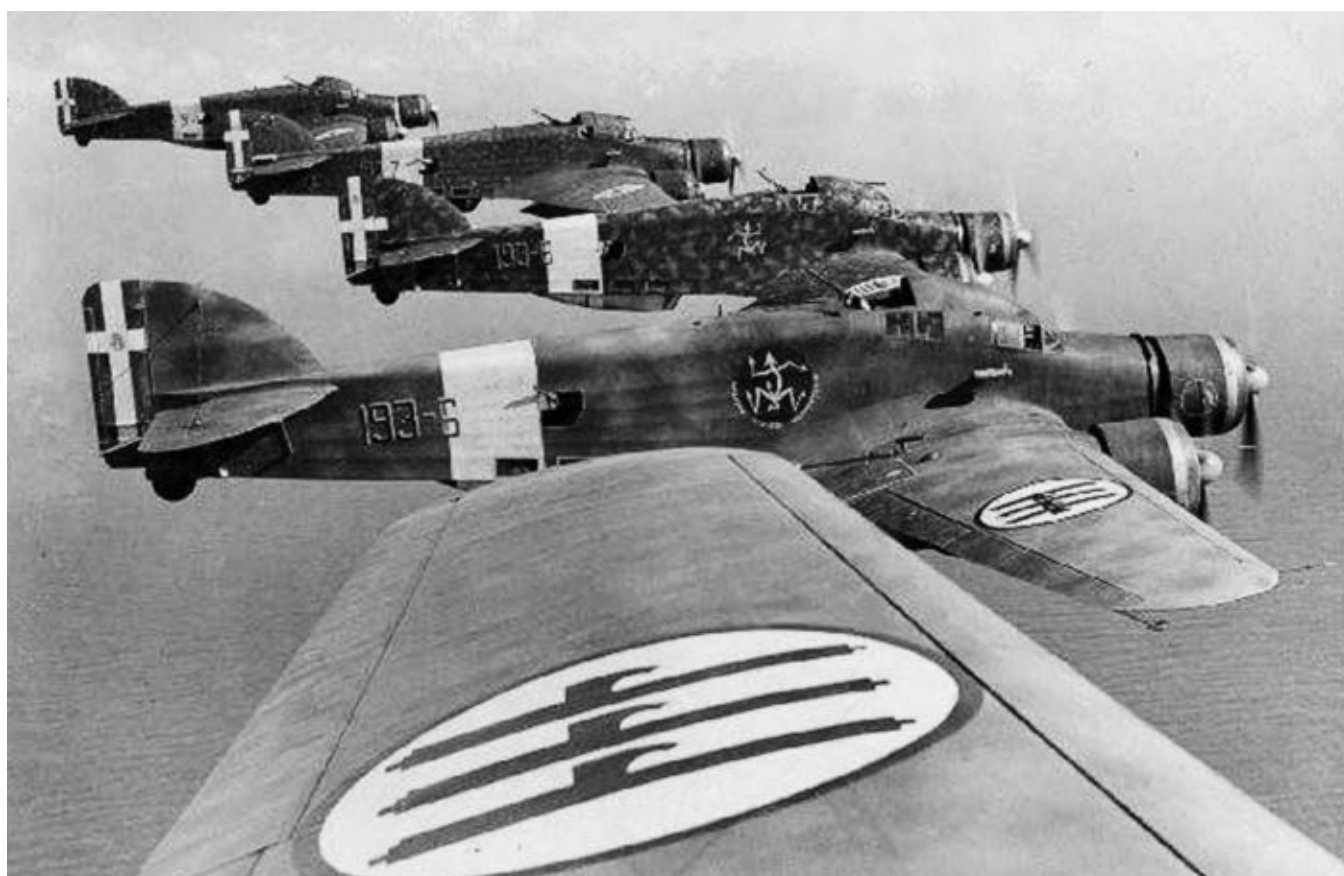
upbeat, remarking, "They should be in full retreat within three hours."

He also refused to allow the aircrew and the least experienced students to leave the defensive positions that he had established. This was despite the fact that, even bolstered by 400 Arab auxiliaries, they would be wildly ineffective versus an armored charge. Knowing that their ground crews' availability to service returning men and machines would be critical to the attack's outcome, Smart's squadron commanders furtively toured the perimeter late on the night of 1 May and led away the cadets and service personnel, reassigning them to more profitable tasks.

The Iraqis were well dug in on broken ground, providing good cover and concealment. In the first raids, the RAF airmen did not see many potential targets.

At 4:30 on the morning of 2 May, the first flying machines cranked their engines on the Habbaniya Airfield. Thirty minutes later, they were showering bombs onto the Iraqis. Flashes from artillery twinkled in the predawn murk as the RAF's victims, unable to draw beads on the airplanes in the darkness, retaliated by shelling the airfield. These gunners, by opening fire, gave away their positions to the British. The Audaxes dropped explosives on the ack-ack pits while the Wellington bombers strafed from their front and rear machine-gun turrets. The Iraqis were

Savoia-Marchetti S.M.79 over Sciacca. The trimotor bomber remained in Italian service until 1952. (Photo courtesy of EN-Archive)





The flight had seven Fairey Gordons, which were technically fighters but they did whatever was asked of them at the training school. (Photo courtesy of Joe Gertler)

using a great deal of tracer, marking their trajectory and enabling the aviators either to attack or avoid their positions. Bombing from a height of just 1,000 feet for maximum accuracy, the Englishmen were careful to scan the enemy positions for suitable targets of opportunity for ensuing flights.

Revolving Attacks

As soon as an aircraft landed, one of its two crewmen (they alternated) would hurry to the operations control room, report on the results of the just-finished raid and make suggestions on acceptable targets for the next flight. While this reporting and plan-making was underway, the other crew member would oversee the ground crew in making repairs to (providing the plane was not so badly damaged that it was no longer airworthy), refueling, and rearming the aircraft. The planes' engines were generally not shut down during this process. As soon as the first crew member returned with a new assignment, the two would board their machine and return to the fray.

The Wellingtons from Basrah performed well during the first day's fighting, but because of their large size, they were easy targets and got the eagle's share of ground fire. One was shot down over Habbaniya, and the other nine were so damaged that, when they returned to their airfield, they were deemed unserviceable.

Smart's estimate that the enemy would cut and run proved seriously overoptimistic. By 12:30 p.m., after 7 1/2 hours of almost-constant aerial

assault, the Iraqis remained, steadfastly shelling the British base with every gun they had and launching irregularly timed strafing attacks with their own handful of Gladiators.

By day's end, the Englishmen had flown 193 recorded operational sorties. Officially, each man averaged six sorties on that single day. The RAF had lost 22 of its 64 aircraft, and 10 pilots were dead or critically wounded. Only a crippling injury was sufficient to send a man to the infirmary.

Although the Iraqis had been sorely hurt and were showing no inclination to launch a ground attack, they were still firmly ensconced atop their elevation, with a variety of field pieces trained on the smoking flying school. Furthermore, Iraqi troops invaded the British embassy in Baghdad that afternoon and confiscated every wireless transceiver and every telephone, leaving the only two significant English outposts in the region isolated from each other.

By that evening, Dudgeon and Hawtrey were the only squadron commanders who weren't dead or hospitalized. They decided that, the next day, Hawtrey would command all remaining Audaxes and Gladiators and operate them from the base's polo field, which was screened from artillery fire by a row of trees. Dudgeon would direct all Oxfords and Gordons from the cratered landing field. Still, all the installation's manpower soon had another matter to address.

On 3 May, Smart suffered a nervous breakdown and, by some reports, also was injured in a motor-vehicle accident. He was sedated, loaded



onto a DC-2 with women and children evacuees, and flown to Basrah. Smart's emotional collapse was hardly surprising considering that he was primarily a teacher, not a soldier. He had repeatedly contacted his superiors prior to the battle, seeking advice, instructions, and authorization. Until Churchill's tardy, fleeting response, every military officer above him had carefully avoided taking any responsibility for whatever happened at Habbaniya, passing the buck back to him—the flying-school administrator—for the conduct of, perhaps, the most crucial Mideast battle of World War II. Group Captain John Savile took over command.

Desperate but Novel Tactics

Following Smart's departure, Horse Evans, one of the pilots flying Gordons, developed a novel, horribly risky but terribly effective method of dive-bombing. The 250-pound bombs that the Brits were using were fitted with a safety device to prevent them from becoming prematurely "live." This was to insure that they did not detonate early and destroy the planes dropping them. Evans had ground-crew members affix to his bombs a seven-second delay. After the bombs were loaded onto their racks, Evans would remove the safety devices. This meant that, should a bomb come loose from its fitting during takeoff or in the midst of wild combat maneuvering, it would probably explode seconds later, obliterating the plane and everyone in it.

After taking off, Evans would ascend to about 3,000 feet, scan the Iraqi positions, and select a target. Diving at 200 miles per hour, he would

yank back on the stick and, virtually atop the target and with Iraqis scattering like quail, drop a bomb at a height of six to 10 feet—in other words, too close for him to miss. Seven seconds later, just as the fearless young Englishman made it to a (barely) safe distance, the bomb would explode and pulverize the target, rattling Evans's teeth. This tactic so terrified the enemy that they soon began to take to their heels without bothering to fire on the plunging Gordon, which would then return to base unscathed.

All week, the forces of Gaylani shelled the British at Habbaniya but seemed to lack the self-confidence to launch a ground offensive in the face of RAF air superiority. Perhaps the arrival of four new Blenheim fighters on 4 May also caused the besiegers to think twice about storming. When, the following day, one of these Blenheims shot down an attacking, Iraqi-flown Audax, the air attacks on the Brits began to dwindle.

At the same time, a DC-2 flew in with, among other supplies, ammunition for a couple of World War I-era field pieces that, for years, had stood as ornaments outside the officers' mess. To the surprise of the whole garrison, the old guns proved to be still operable, and when the English opened up on the enemy-held plateau, the Iraqis assumed that the English were being reinforced with artillery, exacerbating the besiegers' morale problems.

Still, the defenders were suffering much worse than their foes seemed to realize. After four days of combat, just four of the original 27 Oxfords were still battleworthy. The Audax, Gladiator, and Gor-

The Hart-based 1930s' biplanes of Hawker were seen around the world in a bewildering number of variations, which included the Hind, a light bomber. (Photo by John Dibbs/planepicture.com)



The sole Mk.I Bristol Blenheim bomber at the RAF training school was joined by three others before the siege was over. (Photo by John Dibbs/planepicture.com)

don contingents were similarly depleted. Pilots were also becoming scarce, as half-trained cadets were killed or crippled in action or had suffered cracked nerves. The situation was far from settled.

On the morning of 6 May, a reconnaissance Audax roared home with the terrifying news that a bristling enemy column was approaching from the direction of Baghdad. Then, at 10:00 a.m., the Iraqi air elements launched their strongest-yet raid on Habbaniya. As the thinned-out, fatigued defenders prepared to take off in whatever they had left in a desperate attack on the approaching reinforcements, the Iraqis on the ridge suddenly began to leave. They evidently were unaware of their approaching comrades. It was not even an orderly withdrawal. The troops, who for four days had been bedeviling the dwindling Brits, stampeded off the heights and down the main road in total disorder.

It did not take long for these retreating forces to meet up with the relief column on the road. In complete disregard for military protocol, both groups stopped on the highway; personnel jumped from vehicles to confer; and all trucks, tanks, and armored cars were parked in plain view, nose-to-tail, rather than dispersing. They made a huge, bunched-up, hard-to-miss target, and it was at this point that the RAF arrived as Savile hurled every remaining Audax, Gladiator, Gordon, and Oxford at the mass of vehicles clumped conspicuously on the desert floor.

These young Englishmen in their old airplanes knew that they would never have a better (or

another such) chance. They had to stop this swollen force from regrouping and returning to Habbaniya, where they would easily overwhelm the weakened defenders. Catching them concentrated and exposed like this was a godsend. The men in the vintage craft bombed and strafed desperately and devastatingly, expending every bomb and bullet they carried before rushing back to base to rearm and refuel. They left the convoy in flames.

The British airmen arrived back at Habbaniya to prepare for their next sortie in the midst of the day's second air raid by Iraqi-flown craft. Dodging exploding bombs, the Brits took off again, returned to the highway, and resumed pounding the enemy, who apparently had not anticipated a second raid and were still clustered in plain view. The two air strikes took two hours, as the English flew 139 separate aircraft sorties, annihilating the two Iraqi convoys. These raids cost only one Audax shot down by ground fire.

Armed base personnel and Arab auxiliaries ventured from the airfield and rounded up 408 demoralized Iraqi prisoners, including 27 officers. Including these POWs, Gaylani lost more than 1,000 men that day in exchange for seven Englishmen killed and 10 wounded.

The next day, the British could find no trace of the enemy near Habbaniya. Ground personnel eventually found and shot up a few Iraqi machine-gun nests in the village of Dhibban, located on the banks of the Euphrates just east of the airfield.

Follow-up to an Amazing Victory

The Habbaniya garrison had, during five blazing days, dropped more than 3,000 bombs of various sizes, totaling more than 50 tons. They had fired more than 116,000 rounds of machine-gun ammunition. All this during a recorded 647 sorties, although many flights went unrecorded. All told, 13 were killed, 21 critically wounded, and four lost to emotional collapse. It was a smashing victory over Gaylani's attempt to slash England's petroleum jugular and, thus, win the European war for the Axis powers before the United States joined the fight.

On the very day this motley fleet of RAF antiquities was reducing the combined Iraqi forces outside Habbaniya and instilling in these armed forces an obsessive dread of British aircraft, Luftwaffe Colonel Werner Junck was in Berlin, being briefed on his new mission by the Chief of the Air Force General Staff Hans Jeschonnek. Junck was to command Luftwaffe forces to be sent to Iraq. When Jeschonnek informed Junck, "The Fuhrer desires a heroic gesture," the somewhat confused colonel asked precisely what was meant by this. Jeschonnek replied, "An operation which would have significant effect, leading perhaps to an Arab rising in order to start a jihad, or holy war, against the British." These Germans had no way of knowing that their Mideast allies already had been soundly defeated and that the garrison at Habbaniya was almost at that very moment

assumed that the raid had come from Mosul, 200 miles away. Savile sent the reinforcements on a raid that damaged or destroyed six German craft for the loss of one of the new Hurricanes, whose pilot, while strafing at an extremely low altitude, flew into the fireball of an exploding Messerschmitt-110. At the same time, Habbaniya biplanes shot down two Me 110s over Fashid Airfield in Baghdad.

The mind-numbing terror of the RAF that had been instilled in the Iraqis by the siege of 2–6 May meant that these late-arriving Luftwaffe elements were receiving no assistance from their Arab friends. Furthermore, the casualties that the English inflicted on the Germans on 17 May were grievous to a force that was too little, too late. On 18 May, a substantial column of reinforcing British infantry reached Habbaniya.

By month's end, the Germans had depleted their local resources, while their Iraqi colleagues adamantly refused to engage the dreaded British. Gaylani, after embezzling his soldiers' monthly payroll of 17,000 dinars, fled Baghdad. The RAF, meanwhile, took over Baghdad Airfield.

On 10 June, the last German personnel in Iraq evacuated to Greece. The Germans had lost 21 aircraft, but this was far less damaging than the pounding their prestige took in the eyes of the Arabs whom they had hoped to convert to the Axis cause. Preoccupied with the looming, monumental invasion of the Soviet Union,

THE MEN IN THE VINTAGE CRAFT BOMBED AND STRAFED DESPERATELY AND DEVASTATINGLY, EXPENDING EVERY BOMB AND BULLET THEY CARRIED BEFORE RUSHING BACK TO BASE TO REARM AND REFUEL.

receiving a message from Churchill: "Your vigorous and splendid action has largely restored the situation. We are watching the grand fight you are making. All possible aid will be sent."

Assuming that Gaylani's promise of 18 April—to make Habbaniya available to them—must have been fulfilled by then, the Germans were preparing for a casual takeover of their new Mideast base of air operations. Meanwhile, the garrison that the Nazis figured was kaput was repairing aircraft and launching postsiege raids that, by 10 May, had essentially destroyed the attacking power of the Iraqi air force. Soon after, the RAF in Egypt began sending some of its older planes to Habbaniya as reinforcements.

Tardily arriving Luftwaffe elements launched raids on Habbaniya on 16 May, but the next day, four Gladiators and six Blenheim bombers arrived from Mediterranean bases. In addition, the base received two modified, extralong-range Hurricane IIC cannon-equipped fighters.

Savile and his men wasted no time putting these new machines to use. Judging from the approaches and departures of the German aircraft the previous day, the British correctly

Adolf Hitler had not seen fit to earmark sufficient attention to obscure Iraq. A quick, sizable German incursion in support of Gaylani likely would have succeeded, cutting off the flow of crude oil to the United Kingdom before significant shipments from the United States began. Hitler then could have quickly finished off fuel-bereft England and moved onto Russia, unburdened by the nagging threat of an undefeated Britain behind his back.

The implications of the Habbaniya battle are staggering—among the most significant in recorded history. Not only was Great Britain's oil supply secured but also 39 valorous flight instructors and their students denied Nazi Germany access to the priceless oilfields of the Middle East. The RAF No. 4 Flying Training School saved the day for the United Kingdom, but even the folks back in England, distracted by the capture of Germany's Deputy Fuhrer Rudolf Hess, took little notice. Yet history has an obligation to do better and to give full credit to these three dozen "unqualified" young men who aborted what could have been a German takeover of the Mideast, which would have left the United Kingdom's fighting forces clattering to a fuel-starved halt. ✚



Pilots of VF-2 pose together on June 18, 1944, the day before the Marianas Turkey Shoot. (Photo courtesy of Thomas McKelvey Cleaver)



ESCAPE FROM AGANA HARBOR

WHEN THE OCEAN BECOMES THE ENEMY

BY THOMAS MCKELVEY CLEAVER

On June 6, 1944, while the Allies landed at Normandy, the greatest American combat fleet yet seen in the Pacific sailed from Majuro anchorage. Its goal was the Mariana Islands, 1,800 miles to the north-northwest. Seven heavy fleet carriers and eight light carriers of Task Force 58 under Admiral Marc Mitscher would support 535 ships and 127,000 assault troops in the invasion of Saipan.

Welcome to “the Hornet’s Nest”

Among the carriers was USS *Hornet* (CV-12), with Air Group Two aboard. *Hornet* had arrived in the Western Pacific in late March, commanded by Captain Miles Browning and flying the flag of Rear Admiral J. J. “Jocko” Clark. Air Group Two had suddenly received orders to go aboard *Hornet* on its arrival at Pearl Harbor on March 4, Captain Browning having declared Air Group 15 “unfit for operations.” Ensign Don Brandt, newly arrived in “The Rippers” of Fighting Two, remembered, “The guys from Air Group 15 seemed awfully happy to be getting kicked

off that ship, which seemed rather strange to us.” Air Group Two was entering “the hornet’s nest.”

Miles Browning was one of the chief architects of the carrier strategy developed in the 1930s, and a man whom Ken Glass of Torpedo Two would recall as “the worst officer I ever met in 30 years in the Navy.” Browning was disliked by nearly every officer in the Navy other than Admiral William F. Halsey of the Third Fleet, and had managed to antagonize Secretary of the Navy Frank Knox. After two months in the Western Pacific, Browning had finally gone too far and been relieved the week before departure for the

Marianas. Air Group Two had first experienced combat at the end of April, covering the Hollandia landings in New Guinea, followed by the last Navy strike against Truk. While they had yet to encounter Japanese aircraft, the flyers looked forward to the coming operation.

Opening the Score

The invasion was the most important one to date. With air bases built on the Marianas, the new B-29 Superfortress would be in range of Japan. The Japanese were aware of the result if they lost here, guaranteeing a maximum effort by the Imperial Navy.

The fleet arrived on June 11, 1944. Rather than the traditional dawn strike, the first preinvasion strikes were launched at 1300. While Saipan was the main target, Air Group Two struck the airfields on Guam to keep Japanese land-based air units from responding. Fighting Two's commanding officer, Lieutenant Commander William E. "Bill" Dean, led the sweep, followed 30 minutes later by Helldivers and Avengers. While en route, the CAP (combat air patrol) division over the Hornet led by Lieutenant L. E. "Tex" Harris dispatched three Betty snoopers to open The Rippers' score.

The Orote Peninsula on northwest Guam was the target. Flak was heavy, and two SB2Cs were shot down. Fighting Two's Lieutenant (junior grade) Howard B. "Duffer" Duff Jr., was hit by flak and forced to ditch north of the island. When his wingman, Lieutenant (junior grade) Dan

AS HE OPENED HIS CANOPY TO BAIL OUT, I CALLED TO HIM NOT TO DO SO ... PARACHUTING ONTO SHORE WOULD MEAN CERTAIN CAPTURE AND ALMOST CERTAIN DEATH AT THE HANDS OF THE JAPANESE.

Carmichael, circled to check Duff's condition, Zeros came after him at low level, while others dove on the rest of the formation. In the melee, Carmichael shot down two planes, but when he returned to the crash scene, Duff was gone. In the meantime, Dean had shot down four. Combined with his victory when the squadron was aboard USS *Enterprise* during the Tarawa invasion, he became Fighting Two's first ace. Several future aces began their scores in this flight. Lieutenant Mike Wolf scored three; Ensigns "Irish" Harrigan, Davey Park, Landis "Blood" Doner, and Arthur Van Haren each scored two; and Lieutenant Butch Voris and Ensigns Leroy Robinson, Warren Skon, Lester Sipes, and Lieutenant (junior grade) Charles Carroll scored singles. With a score of 23 in this fight, followed by 10 during a second mission, with nine scored by the CAP, Fighting Two had 52 for the day, a new fleet record. The victories were tempered



by the loss of "Duffer," one of the most popular men in the squadron, known as a pilot with a quick and wicked wit who was always ready to volunteer for tough missions.

On June 12, Japanese fighters again rose to give combat over Guam. Fighting Two scored 11 more,



with two each to "Tex" Harris and Dick Griffin, with Franklin E. Gabriel, Gene Redmond, Ross Robinson, Leroy Robinson, W. L. "Bill" LaForge, Richard B. Blaydes, John L. Banks, and Mike Wolf getting one each. Banks and Wolf also shared an Irving night fighter that they ran across

while inward-bound on the strike. On a second strike, Lieutenant John Searcy was hit by flak, but he managed to ditch and get picked up by the lifeguard submarine USS *Stingray* (SS-186). Lieutenant (junior grade) D. "Demi" Lloyd was shot down and killed.

"Ole 95" was the most reliable and successful TBM-1C in Torpedo 2, flying more missions with fewer aborts than any other airplane in the squadron. (Photo courtesy of Thomas McKelvey Cleaver).

Plane 13—Hour 13—Angels 13

June 13 saw three strikes against Guam. The second found a Japanese convoy of four cargo ships and two destroyers, which were attacked with one cargo ship and the two destroyers left burning. A third strike was flown by volunteers. Air Group Commander J. D. Arnold led the mission,



Ensign Don Brandt of VF-2 arrived as a replacement shortly before Hornet left Majuro for the Marianas invasion. (Photo courtesy of Thomas McKelvey Cleaver)

with Ensign Don Brandt as his wingman. Brandt checked his watch as they approached Orote Point at 1013. "It was 13 minutes after the hour, and I was at 13,000 feet in Hellcat number 13," Arnold remembered. "As we pushed over in a bombing run, antiaircraft fire intensified, and Brandt's plane was hit almost immediately. As he opened his canopy to bail out, I called to him not to do so. I didn't think that he could land in the water from his position, and parachuting onto shore would mean certain capture and almost certain death at the hands of the Japanese, who, we had been briefed, were taking no prisoners."

As Brandt remembered, "I dove to get away from the flak, increasing speed to 360 mph. I was afraid I couldn't get out at that speed, but when I unfastened my harness and slid open the canopy, wind pressure sucked me out immediately." Flung

upside down when the parachute opened because one riser was jammed beneath the backstrap, Brandt struck head first and went under. "I had to pull my knife and slash at the harness to escape to the surface. The 'chute billowed and pulled away, taking my raft with it, then sank as it became waterlogged."

At 1014, Arnold called the Stingray, operating only a few miles offshore, to request it pick up his wingman. He then ordered the dive bombers to hit the shore positions, where there were several large guns that could endanger the submarine. A division of Hellcats strafed a Japanese boat that tried to set out from shore to capture Brandt.

In the water, Brandt managed to inflate his Mae West and discovered that the wind was pushing him away from shore. "I was one unhappy ensign when I saw the planes turn back to the carrier." The Japanese didn't fire at him during the next hour as he drifted in the bay, waiting for his rescuers to arrive.

At 1115, another Hornet strike force appeared overhead, with SB2Cs going after Japanese warships in Agana harbor. Helldiver pilot Lieutenant (junior grade) LeMoine spotted Brandt and abandoned his attack in order to drop a large raft to Brandt. Stingray's captain, Lieutenant Commander Sam Loomis, learned from radio reports that Brandt was still within range of the guns. The submarine continued her submerged run toward the bay.

Alone in the raft in the middle of harbor, Brandt figured that it would only be a matter of time before the Japanese would send a boat to get him, but he continued paddling toward the harbor entrance. "I knew if the sub was coming, it couldn't pick me up, being this close into shore and in the middle of the harbor."

Fortunately for Brandt, there was a way to be rescued. The Marianas are the product of the collision of two tectonic plates, so the islands have steep drop-offs leading to the Mariana Trench, the deepest place in the ocean. With such deep water close to shore, Stingray could enter directly into Agana harbor submerged.

"I suddenly noticed this periscope rise out of the water about two feet high. It slowed to a stop, and I paddled over. I took the life rope on the raft and looped it around the periscope, and we started moving toward the harbor entrance! I later learned the submarine ran in reverse all the way since there wasn't room in the harbor to turn around."

In the meantime, Arnold had quickly refueled and rearmed. He later recalled, "We returned about 1430 and spotted Don still in his raft in middle of the harbor. We commenced runs on the beach to keep their heads down. I was cussing out the skipper of the submarine for his lack of action, then I flew low and realized Don was moving through the water a lot faster than the wind could

13 June 1944

- 0500 On station.
Working toward island.
- 0835 "Chickens" finally arrived.
- 0946 Received word that pilot had landed in chute about 500 yards off AGANA air strip.
- 0950 One of our "Chickens" shoved off to locate pilot. Commenced 40 mile run to designated position. Asked planes over AGANA, in what condition the shore batteries were. Answer came back that there was one dual purpose still in action. Shortly thereafter, word came from our "Chicken" that he was circling downed pilot and undergoing intense AA fire. During our end around OROTE Pt. we asked planes over AGANA if pilot had drifted very far. Our "Chicken" came back with the answer that he was still about 500 yards from the beach and not making much headway. Someone piped up over VHF and said, "Don't tell them that, they'll never go in". Immediately thereafter we received the report that pilot was at least a mile off the beach and drifting nicely.
- 1215 "Chickens" lined us up for approach on pilot.

USS Stingray (SS-186) was a prewar "Salmon" class fleet submarine, the first of the new "fleet boats" that would fight World War II. Her war began on December 7, 1941 in Manila Harbor and extended over 16 war patrols between 1941 and 1945, the most war patrols ever by any American submarine. The rescue of Don Brandt occurred on her 11th patrol. With shells exploding on either side, she made four submerged approaches until the pilot was finally able to grab one of the submarine's periscopes and was towed safely clear. (Photo courtesy of Thomas McKelvey Cleaver)



U.S.S. STINGRAY (SS 186)

CONFIDENTIAL

Subject: USS STINGRAY - Report of Eleventh War Patrol.

13 June 1944 Cont'd.

- 1436 Heard another closer one.
- 1436 Heard another close shell.
- 1437 1/2 Heard two more.
- 1438 Heard one shell.
- 1440 Heard and saw 2 splashes close aboard.
- 1453 Pilot missed the boat again. On this try, he showed the first signs of attempting to reach periscope. Maybe shell fire has made him think that a ride on a periscope might be all right after all.
- I am getting damned disgusted, plus a stiff neck and a blind eye.
- 1500 Heard another shell.
- 1516 Fourth try: Ran into pilot with periscope and he hung on! 130°-35'E. 144°-44'E.
- Towed him for one hour during which time he frantically signalled for us to let him up. His hand was out badly and it must have been tough going hanging onto the bitter end of the line with one hand while bumping along in the white caps. Making 2 knots. However, at this stage of the game, I wasn't feeling one bit sorry for him.
- 1611 Lowered towing scope, watching pilot's amazed expression with other periscopes.
- 1613 Surfaced.
- 1618 Picked up Ensign Donald Carol BRANDT, A-V(N), U.S.N.R., File No. 315147, suffering from deep wound in left hand. Glad to finally get him aboard. Said that during first and third approaches he was afraid periscopes were going to hit him and he tried to get out of the way and come in astern of them. He had been

U.S.S. STINGRAY (SS 186)

CONFIDENTIAL

Subject: USS STINGRAY - Report of Eleventh War Patrol.

13 June 1944 Cont'd.

- 1227 Shell splash on starboard beam, distance about 400 yards.
- Dived.
- Manned scope as we were going down and saw two splashes dead ahead, about 200 yards.
- Watched TBF drop a rubber boat and had word soon after, that pilot was in boat.
- 1233 Sighted pilot dead ahead. Had to approach from lee or across wind. Velocity 10 - 12 knots.
- 1235 Two shell splashes ahead.
- 1238 Two more splashes and burst of AA near pilot. Can see him ducking in rubber boat.
- 1240 Pilot has sighted us and is waving. Holding up left hand which shows a deep cut across its palm.
- 1303 Approached with about 10' of #1 scope and about 3' of #2 scope out of water. Pilot very close and no signs of line ready for scope. Pilot so close I have lost him in #1 field. Headed directly for him. Missed.
- Posit 130°-33'N 144°-46'E.
- 1319 Three shell splashes on port quarter.
- 1347 Heard shell land close aboard.
- 1349 Heard another close one.
- 1352 Almost on top of pilot. Now, he's paddling away from scope. Missed.
- 1418 Planes commenced bombing AGANA field and shore batteries.
- 1423 Shell splash, about 500 yards.
- 1424 Heard shell splash.

... he showed the first signs of attempting to reach periscope. Maybe shell fire has made him think that a ride on a periscope might be all right after all.

CONFIDENTIAL

U.S.S. STINGRAY (SS 186)

Subject: USS STINGRAY - Report of Eleventh War Patrol.

13 June 1944 Cont'd.

- briefed on periscope rescue procedure; but guess the shock from getting hit at 14,000 feet and falling upside down in his parachute from 12,000 feet was too much. And then the shell fire shouldn't have done him much good either. He's taking quite a running, and taking it well. We're on speaking terms now, but after the 3rd approach on him, I was ready to make him captain of the boat.
- 1629 FBF passed overhead with half of its horizontal stabilizer shot away. Said he could make it home.
- 1633 Shell splash about 1500 yards on port quarter.
- 1730 "Chickens" shoved off.
- 1825 Sighted BETTY heading for us, distance about 7 miles.
- Dived.
- 1945 Surfaced.
- Had no word of downed pilots in water, but carried out search, firing rockets at various times thru out the nite.
- June 1944
- 0445 On station.

carry him. I made a second pass and spotted the silhouette of the submarine under him. They were towing him out of the harbor!" Arnold and the others circled to protect the submarine and Brandt, who remembered, "Finally, after what seemed like a very long time to me, we were about three-quarters of a mile offshore and they lowered the periscope, then surfaced and picked me up." Brandt and his friend John Searcy, downed the day before, were reunited aboard *Stingray*. For the next 30 days, they had quite an odyssey in returning to the group. Dropped off at Eniwetok at the end of June, they were able to convince authorities not to return them all the way to Hawaii, and they hitchhiked their way to Majuro and then on to Saipan in an adventure that lasted more than three weeks.

While Brandt was aboard *Stingray*, Fighting Two participated in "the Marianas Turkey Shoot." Over two days, June 18–19, the Imperial Navy lost 433 carrier-based and 200 shore-based aircraft and irreplaceable pilots. Although the Americans didn't realize it at the time, it was the death knell of the Imperial Japanese Navy Air Force. The Rippers' contribution was 115 scored in the two days, making the squadron number two in the fleet after VF-15's "Satan's Playmates" aboard USS *Essex*.

Fighting Saburo Sakai over Iwo Jima

Brandt and Searcy were still aboard *Stingray* when "Jocko" Clark headed his task force north to strike Iwo Jima on June 23 and 24. On the 24th, Fighting Two discovered the Imperial Navy's pilots were still willing to fight. Fifteen Hellcats of VF-2, accompanied by other fighters from the Yorktown, Belleau Wood, and Bataan, headed toward the island in a cloudy sky. When they

scored three. "Stinky" David, R. G. Shackford, "Tex" Vineyard, and Connie Hargeaves each scored four in the fast-moving fight. Hargeaves, who had not previously seen an enemy airplane, remembered, "The enemy pilots didn't show a lot of skill. I found a flight of four and just worked from tail-end Charlie to the leader without any of them taking any evasive action." He spotted a fifth Zero and opened fire, but as it fell away, Hargeaves was forced to take evasive action against others and was unable to confirm a fifth victory; that would come a few hours later, when he shot down a Nakajima Jill attempting to attack the task group.

Below the clouds, Sakai endeavored to lead his formation in a surprise attack but was surprised by Hellcats appearing out of the clouds. He maneuvered away as the F6Fs fastened on his neophytes and realized his major disadvantage having only one eye, when he momentarily lost sight of the fight. Spotting a formation in the near distance, Sakai flew toward it. He was too close to turn away when he suddenly realized that they were Hellcats. In a fight that became legendary, Sakai proved his superior flying skill, eluding every attack for more than 20 minutes.

As Sakai recalled after the war, "The first Grumman tried to match the turn with me. For just that moment I needed, his underside filled the range finder and I squeezed out a burst. The cannon shells exploded along the fuselage. The next second, thick clouds of black smoke poured back from the plane, and it went into a wild, uncontrolled dive for the sea. At least a half dozen were on my tail as they opened fire. Another left roll—fast! The six fighters ripped past my wing and zoomed in climbing turns to the right. I slammed the throttle on overboost and rolled right. Fifty yards away I opened up with the cannon, watching shells move up the fuselage and disappear into the cockpit. Bright flashes and smoke appeared beneath the glass, and the Hellcat swerved crazily and fell off on one wing trailing a growing smoke plume." The two Hellcats marked Sakai's 63rd and 64th victories, but the fight wasn't over.

As Sakai twisted and turned, never stopping his maneuvers, the F6Fs broke in divisions and sections to come in at the one-eyed ace. After several minutes, Sakai became angry at their clumsy attempts and turned on one division that came at him, attacking them head-on. The leader fell away smoking, but the others were quickly on him. He only escaped by throwing his Zero into a spin and falling into a huge cumulus cloud, where he was suddenly in fear of his life as the thunderstorm shook him. He gained precious seconds to get away, while the Hellcat pilots thought they had gotten him.

AS SAKAI TWISTED AND TURNED, NEVER STOPPING HIS MANEUVERS, THE F6FS BROKE IN DIVISIONS AND SECTIONS TO COME IN AT THE ONE-EYED ACE.

were detected by Japanese radar, 80 Zeros of the Yokosuka Air Group—38 led by the legendary one-eyed ace Saburo Sakai, and the other 42 led by top-scoring ace Kinsuke Muto—took off to intercept.

As strike leader Lieutenant Robert R. Butler spotted Mount Suribachi through a break in the clouds, Muto's 42 Zeros burst out of the clouds, diving on the Hellcats. Muto dove on a section of Grummans and reported flaming both, then went after a third, setting it aflame quickly as he turned into a fourth F6F and set its engine afire. While a veteran like Muto could show what a trained Japanese pilot was capable of, his performance was singular. The rest of the Zero pilots were flying targets for the Americans. Bob Butler flamed three, while "Kid" Lake shot down two and Roy O'Neal



The Navy's Leading Fighter Squadron

The Rippers scored 67 victories on June 24, just short of Fighting 15's record 68 1/2 on June 19. They had now scored 187 since June 11, making VF-2 the Navy's leading fighter squadron at the moment, with a faster rate of victories than any other. The squadron had suffered one loss, Lieutenant (junior grade) Conrad Elliott, shot down by a Zero. Given that Muto and Sakai were the only pilots known to have scored, one was the victor.

After a quick turnaround at Eniwetok, Admiral Clark returned to Iwo Jima with a strike on July 3. Fifteen Fighting Two pilots, led by Bill Dean and including Hargeaves, met a force of Zeros north of Iwo Jima and returned with claims for 33. On July 5, as the fleet departed, Sakai was ordered to lead the 10 surviving Zeros to escort the 10 surviving Jills in an attack on the American fleet. He considered it a death sentence because the weather was such that he doubted that his pilots could survive. They were intercepted by the American CAP which shot down all the Jills and seven of the Zeros. Sakai led his two wingmen back to Iwo Jima, where they were issued rifles in expectation of a coming invasion.

Brandt and Searcy returned to the squadron on July 23. After hitching a ride to Saipan, they spotted a Hornet TBF on Isley Field and were taken back to the ship. The Hornet subsequently

launched strikes over the Lesser Carolines on July 25. Forty aircraft were spotted on Yap and strafed. The task group then struck the Bonins on August 4-5 without aerial opposition. Hornet and her task group dropped anchor in Eniwetok on August 7, having completed the most successful carrier sweep yet.

Halsey Sweeps the Philippines

At the end of August, Air Group Two, now led by Admiral Halsey, put in its final month of combat as Task Force 38 shredded Japanese air power in the Philippines. During the wild battles over Luzon and the central Philippines, Don Brandt scored five victories to become one of the 28 aces spawned by Fighting Two, a testament to Dean's tactics and leadership. After the war, Connie Hargeaves recalled, "Commander Bill Dean could have been a very high-scoring pilot had he taken all the flights when opposition was anticipated. But he always tried to keep the scores for all his pilots as even as possible, not catering to a favored few, as some of the other fighter-squadron skippers did. Often, Bill took assignments for the combat air patrol or bomber escort instead of leading all the fighter sweeps. That gave us all an opportunity to get into action. Thus, Fighting Two produced 28 aces in our one tour of duty, a Navy record that still stands." ✚

This restored Hellcat is one of four still able to fly 70 years after the great battles of the Pacific War. (Photo by Bill Crump)

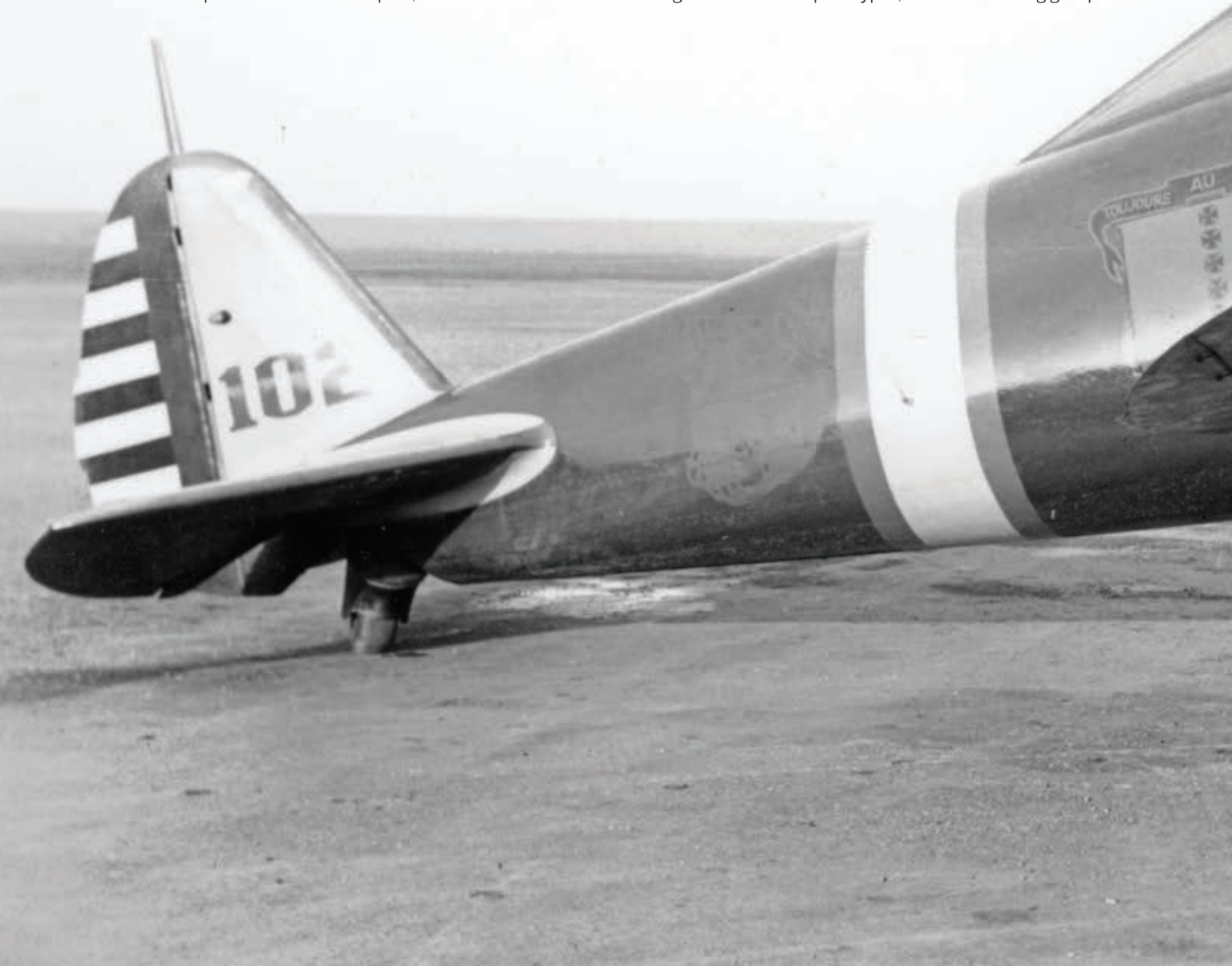
Peashooter

Always Dangerous, Always Beautiful BY JOE GERTLER

The sleek Boeing P-26 "Peashooter" is considered by many to be one of the most beautiful fighters ever designed. It was a key development that moved the evolution of front-line fighter aircraft from metal-framed, fabric-covered biplanes to the low-wing, monocoque, all-metal modern fighters that would wage World War II. In 1931, in the depths of the Great Depression, the military had almost no funding to spare for subsidizing new prototypes to advance the evolution of military aircraft. Given the time of extreme economic hardships, the Boeing Company elected to finance a radical new design prototype, the XP936, by risking its own money, with the hopes that, if accepted, the new design would result in a lucrative contract and strengthen the company. The 900 series of aircraft designations was for civil aircraft in the Army's use. The initial contract stipulated that if not accepted, the test aircraft would

remain the property of Boeing. The Army would provide the engines, instruments, radio, and armament. It had two .30-caliber machine guns and could carry two 100-lb. bombs.

The speed of the process from design concept to delivery has probably never been equaled. It was designed in September 1931 and delivered in March 1932. Actual construction time of the first prototype was only 10 weeks. It was the first U.S. all-metal production fighter, and the first of the Army's all-metal, monocoque construction. It was also the last to maintain a fixed landing gear. The narrow center section, with its strong steel spars, supported a fixed, streamlined landing gear (to save the weight of a retracting mechanism and system), and the outer wings had aluminum spars and flush riveted metal skins. The wings were double wire-braced at top and bottom, to save the weight of heavy struts. During initial testing of the first three prototypes, the narrow landing gear proved



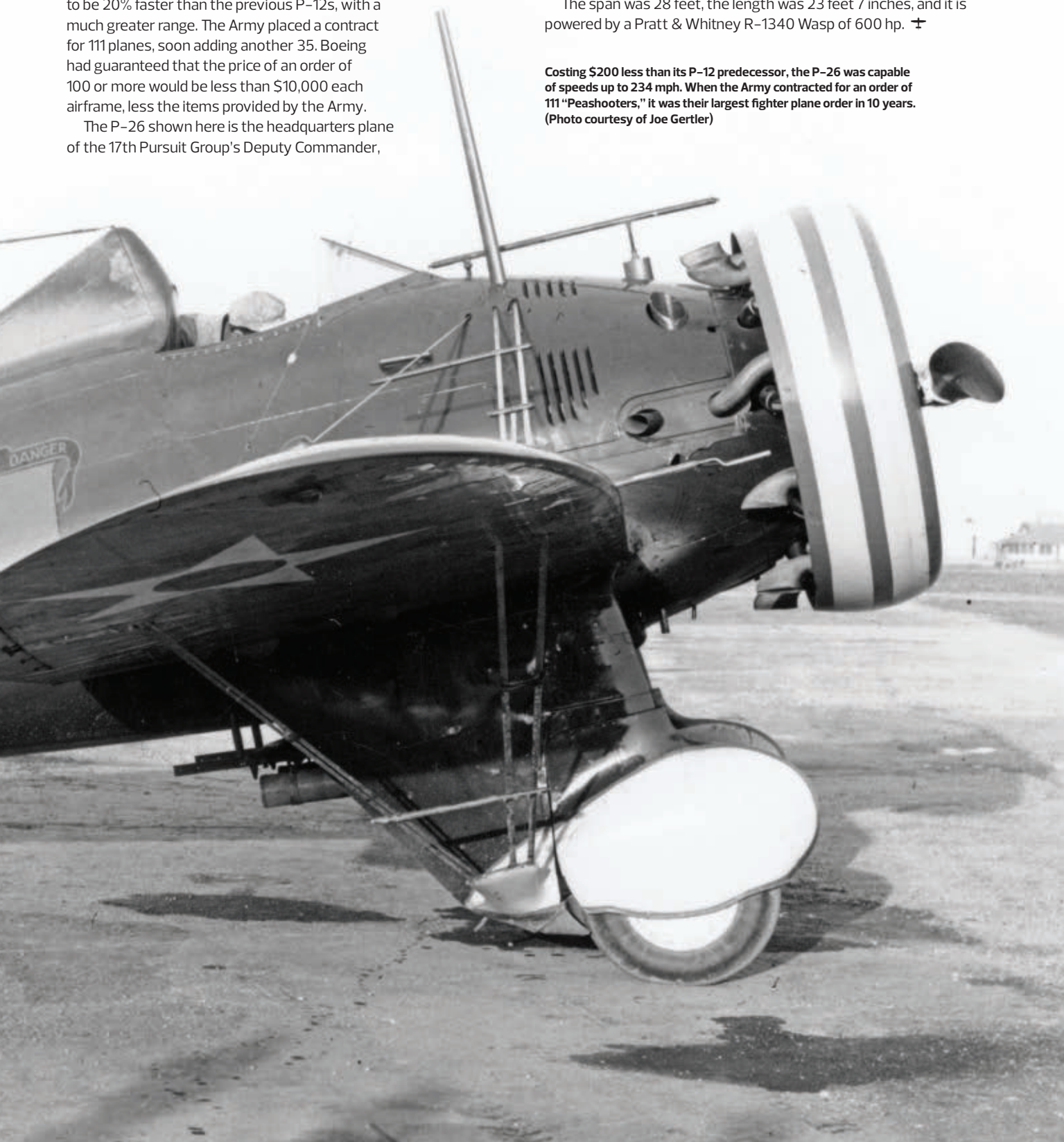
to be a considerable challenge for ground handling and landing. Landing speeds, approaching 84 mph, were considered to be too high, and the addition of flaps, for the production models, was a relatively simple improvement, getting the landing speed down to 73 mph. When one of the test pilots was killed during a prototype testing flip, the rear headrest was increased a few more inches in height, using an internal stiffening bar, to give the aircraft its now-classic look. The name "Peashooter" was a reference to its protruding machine-gun blast tubes. Various tests showed the all-metal P-26 to be 20% faster than the previous P-12s, with a much greater range. The Army placed a contract for 111 planes, soon adding another 35. Boeing had guaranteed that the price of an order of 100 or more would be less than \$10,000 each airframe, less the items provided by the Army.

The P-26 shown here is the headquarters plane of the 17th Pursuit Group's Deputy Commander,

circa 1934. The 17th Pursuit Group was supplied with 51 of the P-26As. The colors of this plane were an olive drab fuselage, with yellow wings and landing-gear accent. The fin was yellow with blue outer trim. The rudder had a blue front bar, with 13 trailing horizontal strips of alternating red and white. The ring cowl and fuselage bar were red and yellow. The fuselage badge with top motto ribbon of "*Toujours Au Danger*" ("Always Dangerous") had a row of seven Maltese Crosses, recognizing the seven major battles their ancestral group, the 95th Aero Squadron, fought in World War I.

The span was 28 feet, the length was 23 feet 7 inches, and it is powered by a Pratt & Whitney R-1340 Wasp of 600 hp. ✈


Costing \$200 less than its P-12 predecessor, the P-26 was capable of speeds up to 234 mph. When the Army contracted for an order of 111 "Peashooters," it was their largest fighter plane order in 10 years. (Photo courtesy of Joe Gertler)



The Rearwin Speedster

Unfulfilled Dreams

TEXT AND PHOTOS BY GILLES AULIARD



While not a top-tier airplane manufacturer, Rearwin Airplanes Inc., founded in 1928 in Kansas City, Kansas, produced a line of rugged high-wing cabin monoplanes that are fondly remembered, culminating with the postwar-era Commonwealth Skyraider 185. One of its least numerous models, however, forever holds a special place in the hearts of modelers and pilots alike: the 6000 Speedster.

Designed by Noel Hockaday and Douglas Webber, the Speedster first took flight on July 11, 1934. Powered by the 95-hp air-cooled in-line four-cylinder ADC Cirrus Hi-Drive engine of English manufacture, the Speedster's sleek lines suggested speed and class.

Confirming this first impression, company test pilot J. B. "Jack" LeClaire, came back enthusiastic from the short hop, touting the Speedster's performance. The model 6000, however, could not meet the stringent U.S. Department of Commerce certification requirements for spin recovery.

After more than three years of modifications and a complete redesign of the tail section of the airplane, the Rearwin Model 6000C (C for Cirrus) was awarded ATC #653 on September 28, 1937. According to test pilot Bill Miller, however, the original airplane was an altogether better machine.



The Rearwin 6000C might have been one of the sleekest light airplanes of the period. However, it took so long to pass government certification tests that technology (in the form of the Continental A-65 engine) had passed it by, so it never went into production.



The 95-hp, four-cylinder, inverted, air-cooled Cirrus engine gave the airplane a distinctive look.

The C/N 302, the second and last Rearwin 6000C, rolled out of the Fairfax County Airport Rearwin facility on May 25, 1936. It was registered the following day to R. A. Rearwin as X-15865 (X for experimental), its certificate bearing the mention: "Demonstration purpose only. No person may be carried away except bona fide members of the crew."

Transferred to the Rearwin company on August 25, 1937, with the commercial registration NC15865, C/N 302 remained a demonstration machine until it was sold to Rudolph Edward Collioud of Montclair, New Jersey, on July 1, 1939. After a succession of owners, including Dexter D. Coffin in 1962–63, the Rearwin ended up in the early '80s in the hands of Aubrey Weeks of San Leandro, California, who sold it to Eric Rearwin on April 10, 2003. Eric acquired the airplane as a tribute to his grandfather Ken Rearwin and his great-grandfather, company founder Raymond Andrew Rearwin. Even though Eric is not a pilot, he saw NC15865 as a family artifact that needed to be preserved and flown.

Entrusting the eight-year restoration process to Tim Talen's the Ragwood Refactory, the Rearwin took its first flight after its rebirth



The pilot's view to either side of the nose was excellent and the instrumentation minimal.

in August 2011. According to Tim Talen, the Speedster flies like every airplane should fly.

"The elevator is very positive, the rudder very nice, and the ailerons work pretty well, even in crosswind conditions. Crosswind landings are easy to control, and you can straighten the wings with the ailerons down to stall speed. You even still have some aileron control on the ground."

The Rearwin Speedster is a rare living icon of a bygone era. ✈



The 6000C's lines, including the in-line cowling, have made the airplane a longtime favorite of radio-control modelers.

The sole remaining example was owned by Eric Rearwin, the grandson of the founder, who put it through an eight-year restoration at Tim Talen's Ragwood Refactory in Oregon.



The tall tail surface was a feature that, along with the long nose, made the airplane readily identifiable.



Left, top: The elevator trim by the pilot's left elbow was simple and positive.



Left, bottom: With fuel tanks in both wings, the selector valve gave the pilot the ability to feed from one or both tanks. Thirty-four gallons of fuel is a lot for an aircraft of this size.

Maxim Machine Gun

A revolutionary advance in weaponry BY BARRETT TILLMAN

If you do an Internet search for “chattering Spandaus,” you only get 89 hits, but that stock phrase has become synonymous with World War I aviation. Generations of moviegoers have seen the image: the leering Teutonic ace, hard eyes gleaming behind squared-off goggles above the blazing muzzles.

The fact is that there is no such thing as a Spandau machine gun (or *Maschinengewehr* in German). Nearly all German fighters of the Great War were armed with Maxim designs, and the fact that some were produced in the armory at Spandau led to the misnomer.

Of even greater import is that the weapon was designed by an American-turned-Briton, Sir Hiram Maxim.

Maxim was a passionate inventor, best known for his electric lights (as a rival to those of Thomas Edison). Maxim’s business took him from Massachusetts to London so often that he settled there in 1900, becoming a citizen of the United Kingdom. He was knighted the following year.

By then, the former Yankee had revolutionized warfare. In the Victorian era of hand-cranked Gatling guns, the recoil-operated, belt-fed Maxim machine gun represented a huge technological advance. The basic Maxim gun, patented in 1883, was demonstrated in Maxim’s garden the next year, churning out 500 rounds of .303 ammunition per minute. The heat produced by the high rate of sustained fire was dissipated by a water jacket surrounding the barrel.

Nearly a decade passed before the wonder weapon was used in combat, deployed against Rhodesian tribesmen in 1893. Thereafter, Maxims became a standard tool in Britain’s colonial feuds. A bit of doggerel declared, “Fear not for we have got...the Maxim gun...and they have not.”

Maxims were widely purchased, frequently equipping navies, as well as armies, in the transitional era when “fighting tops” of warships were still considered useful for sweeping the decks of enemy sailors.

Maxim also dabbled in flying machines. His father had proposed a twin-rotor helicopter but lacked an adequate engine. During the 1870s and ’80s, Maxim experimented without success, owing to the weight of bulky steam engines.

Aerial War

The “Spandau” appeared in Germany in 1908, designated the MG.08, chambered in the 7.92mm rifle cartridge. Derived from the developmental MG.01, the “aught eight” became one of Germany’s iconic weapons in the era of the K.98 Mauser rifle and the P.08 Luger pistol.



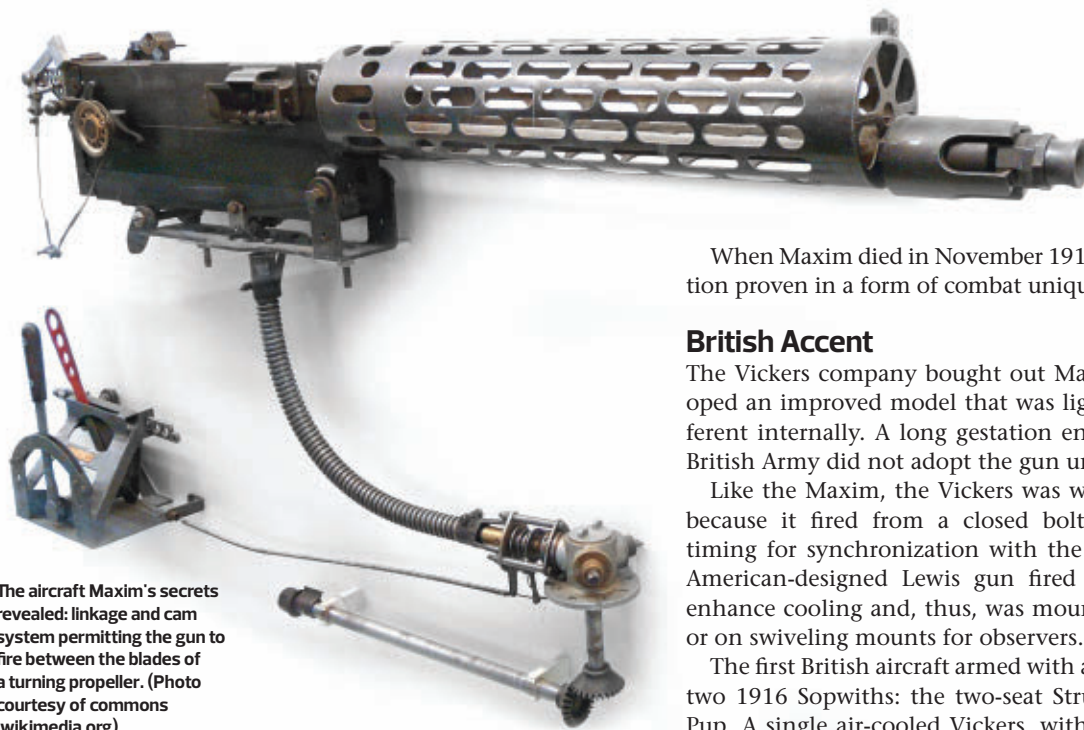
German pilot Ernst Hamscher of *Jagdstaffel* 37 looks down the perforated jackets of the twin MG.08s (popularly known as “Spandaus”) fitted to his Albatros D.III. Though this view almost appears as though it came from a Hollywood film like *Dawn Patrol*, it was taken on the Western Front in 1917. (Photo courtesy of Greg Van Wyngarden)

When Europe immolated itself in 1914, every army had machine guns (mostly of Maxim design), but war elevated them to the third dimension. Observation aircraft often carried machine guns, but the front-mounted propeller on “tractor” designs got in the way. Air arms produced “pusher” designs to provide an unobstructed forward-firing capability but posed serious airframe limits.

The intermediate solution entered aviation lore: France’s famed prewar pilot Roland Garros fixed steel plates to his Morane monoplane’s propeller, deflecting the rounds that struck the prop. It worked long enough for him to down three German aircraft in April 1915. He was then forced down in enemy territory, and his “secret” was revealed.

Legend claims that Dutch designer Anthony Fokker examined Garros’s arrangement and quickly designed an interrupter gear composed of cams and levers, permitting a Maxim to fire forward through the prop arc. Actually, Swiss inventor Franz Schneider had patented the concept in 1913. But his design remained untested, leaving the field to Frenchman Raymond Saulnier the following year. Saulnier’s design probably was sound, but the French Hotchkiss gun proved erratic, and ammunition issues intruded. Thus, Tony Fokker had the stage to himself.

In early 1915, the German Air Service succeeded with MG.08s bolted to Fokker *Eindecker* monoplanes. The weight



The aircraft Maxim's secrets revealed: linkage and cam system permitting the gun to fire between the blades of a turning propeller. (Photo courtesy of commons.wikimedia.org)

of a heavy cooling jacket and water was avoided by holing the jacket to enhance airflow across the barrel. Fed by a 500-round belt, the gun made the E.I and later models the first "system aircraft" because the weapon was more significant than the platform. The E.IV mounted two Maxims (unsuccessfully three), but the extra weight posed a major concern.

Armament affected the performance of aircraft with 80- to 110-hp engines. The basic Maxim weighed about 24 pounds, with 500 belted rounds and an ammunition box running about 30, while the synchronizing gear could add six more. Those items totaled 60-plus pounds, assuming no optical sight or round counter.

The spring and summer of 1915 was, nonetheless, the era of "The Fokker Scourge." With the advantage of aiming the entire aircraft rather than swiveling the guns, the first German *Jagdfliegern* cut a wide swath through Allied formations. The *Eindecker's* wing-warping control system limited maneuverability versus aileron aircraft, but the gun made a huge difference.

A generation of German airmen earned the coveted *Pour le Mérite* on Maxim-armed *Eindeckers*. The first two, Lieutenants Oswald Boelcke and Max Immelman, became international celebrities. Boelcke even was interviewed by The New York Times almost a year before the United States entered the war.

Immelmann died in confused combat in June 1916, either a victim of synchronizing-gear failure or a British gunner who connected with his propeller. Boelcke ran his score to 40 before dying in an Albatros that October.

Other Fokker exponents ran up impressive tallies: Kurt Wintgens and Max Ritter von Mulzer scored in double digits, while six others became *Eindecker* aces. Wintgens, who wore glasses, was a serious talent but fell victim to the appeal of twin guns on his E.IV when interim Fokker and Halberstadt biplanes only carried one Maxim. In September 1916, he learned that the *Eindecker* could not compete with France's new SPAD VII.

With better aircraft—especially Nieuports—the Allies regained air superiority over the Western Front for a time. But Germany countered with the lethal Albatros series of fighters, featuring twin "Spandaus" that led to "Bloody April" of 1917.

When Maxim died in November 1916, he had seen his invention proven in a form of combat unique to the 20th century.

British Accent

The Vickers company bought out Maxim in 1896 and developed an improved model that was lighter and somewhat different internally. A long gestation ensued, however, and the British Army did not adopt the gun until 1912.

Like the Maxim, the Vickers was well suited to aircraft use because it fired from a closed bolt, permitting consistent timing for synchronization with the aircraft's propeller. The American-designed Lewis gun fired from an open bolt to enhance cooling and, thus, was mounted atop biplane wings or on swiveling mounts for observers.

The first British aircraft armed with a synchronized gun were two 1916 Sopwiths: the two-seat Strutter and the delightful Pup. A single air-cooled Vickers, with the water jacket perforated differently than the Maxim, performed just as well with different synchronizers.

All Allied air arms used .303-caliber Vickers during the war, with two-gun fighters emerging in 1917: the Sopwith Camel and SPAD XIII.

One Vickers improvement for aircraft use was the disintegrating ammunition belt. The steel links securing each



Otto Parschau (in helmet and goggles) was an early German ace who contributed greatly to the so-called "Fokker Scourge," achieving eight victories before his death in July 1916. Here, he tries out of the cockpit of a Pfalz E.I, another early monoplane fighter fitted with a single MG.08. (Photo courtesy of Greg Van Wyngarden)

cartridge automatically dropped away when the round was chambered. Available starting in 1917, the disintegrating belts largely avoided cloth belts' tendency to ice up or warp from repeated use.

Additionally, 10mm Vickers were used against German observation balloons, as the larger bullet carried far more incendiary material to ignite the hydrogen in the balloons.

The Vickers was eventually employed by at least nine other nations, usually chambered in their own cartridge in the 6.5 to 7.6mm realm. †



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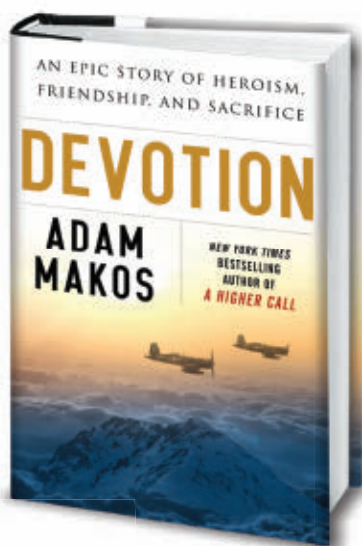
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Phantom: Love Letter to a Mach 2.0 Rock Star

BY ROY STAFFORD

When I was a kid growing up on a Naval Air Station, I was obsessed with airplanes. And like most kids, it seemed to me that the more aesthetically beautiful an airplane was, the more likely it was to have been a success. Who could look at a P-51, Corsair, Spitfire, and FW-190 and not think to yourself, “Man, those are neat airplanes. They’re the best.”

Then the jet age came along, and the iconic F-86 set the standard for everything that followed. The Sabre was an airplane that was beautiful from any angle—perfect symmetry from the side, top, and below. No matter how you looked at an F-86, it was a beautiful thing to behold.

As jets evolved, there were other iconic shapes to follow. The F8U Crusader, the F-105 Thunderchief, the F11F Tiger, the F-104 Starfighter, and—the most attractive of all—the A3J Vigilante. All were beautiful airplanes and, if you believed the press releases, they were world beaters, as well.

My first remembrance of the Phantom was from the cover of an issue of *Aviation Week*, back in 1958. Inside was a glowing

greatest F-4 driver I’ve ever known: Mike “Lancer” Sullivan. Mike would end up as the highest-time Naval Aviator in the F-4, with 5,000 hours in the airplane. What a ride, what a pilot, and what an airplane!

I first flew the Phantom at the Marine Corps Air Station in Yuma, Arizona. I had been flying the A-4 Skyhawk, a great airplane in and of itself. But at the time, the Phantom was to be an experience like no other. First, it was huge. Second, it was complicated. It had all kinds of systems, doodads, and hooyahs to make it fly. (One of my cousins remarked, upon seeing the inside of the cockpit, “Sonny boy, I’ve known you since you were a baby. Ain’t no way in hell you know what all that stuff does. You ain’t that smart.”)

Most of all, the Phantom had incredible engines. Talk about brute force! Those J-79s were every bit of a masterpiece as the airframe. I witnessed an F-4 attempt a gear-up arrested landing at Chu Lai, Vietnam. It slid through the foam, took out two arresting gear, and slid on its belly another thousand feet before both burners lit and she climbed like a Saturn rocket from flat on its belly, allowing the crew to safely eject. That’s power!

Now, the A-4 was no slouch; it could push you back in your seat on takeoff, and honestly, it was more fun to fly than the F-4. But imagine an instructor betting you a bottle of booze that you wouldn’t get the gear retracted on your first takeoff before you exceeded the maximum gear-down speed of 250 knots. It accelerated that fast! It was exhilarating. It was awesome.

Over time, as you learned to master the airplane, it became your second soul. You came to trust it, and it gave you thrills and a feeling of comfort. It would do virtually anything you asked of it. Maybe not as well as you would have liked, but it would do everything competently. I have often called it a “jack of all trades and a master of none,” but once again, it could do everything. Between it and the “conscience” who rode be-

hind me, it always brought me home.

Two areas that always amazed me, besides the eye-watering acceleration, were its stability at high speeds down low (Mach 1.0+) and its incredible stability in the landing configuration. The Phantom was, beyond a doubt, the easiest, most stable airplane to land on an aircraft carrier that I’ve ever flown. Nothing else comes close.

In summation, my relationship with the Phantom was like a strange romance. I’ve flown other airplanes that I’ve enjoyed more. The Phantom wasn’t an airplane, like the A-4, where you could know and feel everything through the stick and the seat of your pants. And once in a while, the Phantom would display a nasty characteristic that would catch you unaware and scare the poo out of you. But like that romance, you accepted it as the price you had to pay to play. And in the end, it was exciting and thrilling, and she always brought me home.

I loved that airplane. ✚



Never considered a beauty, every view of the Phantom shows its brutish, ready-to-rumble attitude. (Photo by Tyson Renninger)

article of the Navy’s newest Fighter/Attack airplane, capable of Mach 2.0 flight! I looked at the picture time and again, and in my young mind, it just didn’t touch me the way other iconic aircraft did. It wasn’t sleek; it wasn’t slender; and it didn’t have long, flowing lines. In fact, it looked kind of fat and brutish, with odd angles all over. It just wasn’t pretty. Was it going to be a champion, like the others I’ve mentioned? I had to remind myself, though, that the F6F Hellcat and the P-47 Thunderbolt couldn’t be described as “beautiful” airplanes, but history has proved that both were exceptional.

As I moved through my teen years, the F-4 was turning out to be everything that was projected and more. It was a world record holder in both “time to climb” and “top speed”; only rocket planes were faster. When I entered Navy flight training, I had one goal from the very beginning: I wanted to fly the mighty Phantom. For I not only had become obsessed as an airplane nut but also was introduced to the Phantom by the

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